Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

Volume 30 Number 1 **Winter 2011**

Monthly meetings

Thompson Park Center/Dakota Lodge
Thompson County Park
360 Butler Ave. E.,
West St. Paul, MN 55118

Programs

The Minnesota Native Plant Society meets the first Thursday in October, November, December, February, March, April, May, and June. Check at www.mnnps.org for more program information.

6 p.m. — Social period

7 – 9 p.m. — Program, Society business

Feb. 3: "New Frontiers in Invasive Earthworm Research," by Dr. Lee Frelich, director, University of Minnesota Center for Hardwood Ecology. **Plant-of-the-Month:** *Viola selkirkii* (Selkirk's violet), also by Dr. Frelich.

March 3: "Shoreline Restoration Tricks and Tips with Financial Help from the Watersheds," by Rusty Schmidt, landscape ecologist, Washington Conservation District. **Plant-of-the-Month:** *Chelone glabra* (Turtlehead), by Rusty Schmidt.

March 26: Symposium. See article on page 2.

April 7: "Minnesota Mushrooms – Then and Now. A Report on Some Recent Survey Results and on the Impact of Fungal Tree of Life Studies on Mushroom Classification," by Dr. David J. McLaughlin, Department of Plant Biology, University of Minnesota. **Mushroom-of-the-Month:** TBD.

DNR increases amount of protected lands in Minnesota

by Peggy Booth, SNA program supervisor. This is a summary of her talk at the Dec. 2, 2010 MNNPS meeting.

The DNR's Scientific and Natural Area Program is responsible for protection and management of special places and rare resources, primarily through the system of designated Scientific and Natural Area (SNA) sites and our Prairie Stewardship Program.

The Prairie Stewardship Program provides assistance to private landowners of native prairie through the Prairie Tax Exemption Program, prairie stewardship planning and management assistance, acquisition of Native Prairie Bank (NPB) conservation easements, and various outreach and education activities. These include the recently released DVD called *Prairie Treasure: A Native Prairie Bank Story,* which is available free through the SNA Program. As of November 2010, 100 NPB easements protect 8,111 acres; this includes 26 new NPB easements on 2,066 acres acquired in the last four years.

Designated SNAs are units within the state's outdoor recreation system established to protect and perpetuate in an undisturbed natural state those natural features which possess exceptional scientific or educational value. As of November 2010, about 184,100 acres are protected at 152 SNAs across the state. Activities on SNAs include ecological management (such as prescribed fires and, in a few locations, deer exclosures and plant community reconstruction), monitoring, research, and educational/volunteer events sponsored by others.

During the last four years, 1,636 acres (at 23 sites) have been acquired, through purchase and/or donation and added to the SNA system. These include 10 newly created SNAs: Lester Lake SNA (Hubbard Co.), Boltuck-Rice Forever Wild SNA(Itasca Co.), Langhei Prairie SNA (Pope Co.), Englund Ecotone

Continued on page 3

In this issue

Symposium 2
Forest history revealed 4
Invasive weed project 4
Wild rice regulations 5
New members 5
President's column 6
Oriental bittersweet 6
Book review 7
Plant Lore: Pussy willow 7

Lake vegetation of Minnesota is topic of March 26 symposium

by Michael Bourdaghs

The Society's 2011 symposium committee has again decided to focus on a specific habitat and has chosen *Minnesota's Lake Vegetation Above and Below the Water Line*. Sessions will touch on the natural history and current conservation issues of the plants and plant communities occurring in the State's lakes and adjacent shorelines.

The Bell Museum of Natural History on the University of Minnesota Minneapolis campus has agreed to host the symposium on Saturday, March 26. A brochure with a full program listing and registration information will be mailed soon.

Shell Lake in Becker County exhibits some of the varied vegetation that will be discussed at the symposium. Photo by Erika Rowe.

Minnesota Native Plant Society's purpose

(Abbreviated from the bylaws)

This organization is exclusively organized and operated for educational and scientific purposes, including the following.

1. Conservation of all native plants.
2. Continuing education of all members in the plant sciences.
3. Education of the public regarding environmental protection of plant life.
4. Encouragement of research and publications on plants native to Minnesota.
5. Study of legislation on Minnesota flora, vegetation, ecosytems.
6. Preservation of native plants, plant communities, and scientific and natural areas.
7. Cooperation in programs concerned with the ecology of natural resources and scenic features.
8. Fellowship with all persons interested in native plants through meetings, lectures, workshops, and field trips.

MNNPS Board of Directors

President: Scott Milburn, scott.milburn@mnnps.org

Vice President: Shirley Mah Kooyman, shirley.mah.kooyman@mnnps.org

Secretary, program coordinator**: Andrés Morantes,** andres.morantes@mnnps.org

Treasurers, membership data base**: Ron and Cathy Huber,** ron.huber@mnnps.org

Derek Anderson, board member, derek.anderson@mnnps.org

Ken Arndt, board member, field trip chair, ken.arndt@mnnps.org

Michael Bourdaghs, board member, michael.bourdaghs@mnnps.org

Elizabeth Heck, board member, webmaster, elizabeth.heck@mnnps.org

Daniel Jones, board member, daniel.jones@mnnps.org

Dylan Lueth, board member, dylan.lueth@mnnps.org

Elizabeth Nixon, board member, conservation committee chair, beth.nixon@mnnps.org

Erika Rowe, board member, erika.rowe@mnnps.org

Russ Schaffenberg, board member, russ.schaffenberg@mnnps.org

Field Trips: fieldtrips.mnnps@mnnps.org

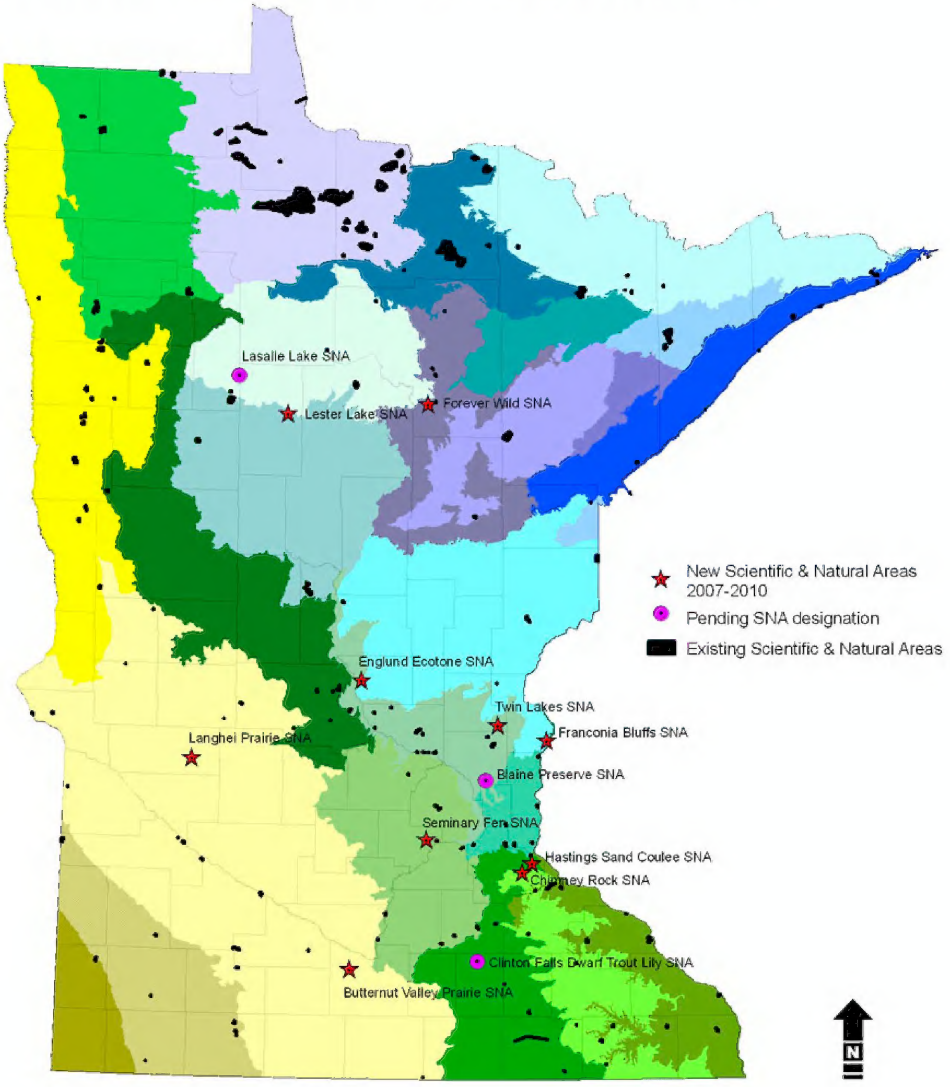
Memberships: memberships.mnnps@mnnps.org

Historian-Archives: Roy Robison, historian-archives.mnnps@mnnps.org

Technical or membership inquiries: contact.mnnps@mnnps.org

***Minnesota Plant Press* Editor: Gerry Drewry,** 651-463-8006; plantpress.mnnps@mnnps.org

Where the new SNAs are



New SNAs

Continued from page 1

SNA (Benton Co.), Twin Lakes SNA (Isanti Co.), Franconia Bluffs SNA (Chisago Co.), Seminary Fen SNA (Carver Co.), Hastings Sand Coulee SNA and Chimney Rock SNA (Dakota Co.), and Butternut Valley SNA (Blue Earth Co.).

In addition, by early in 2011, three new sites will be added, protecting an additional 353 acres: LaSalle Lake SNA (Hubbard Co.), Clinton Falls Dwarf Trout Lily SNA (Steele Co.), and Blaine Preserve SNA (Anoka Co.). The map shows the locations of these 13 newest SNAs.

Attendees at the MNNPS meeting heard an overview about these sites, their primary native plant communities, and selected species they feature.

Lester Lake SNA in Hubbard County (above) is one of the 13 new SNAs. Their locations are identified by a star symbol on the map. The map is courtesy of the DNR. The photo of Lester Lake is by Erika Rowe.

Northfield group is building an outdoor classroom

by Arlene Kjar

Getting children outdoors into the natural world to learn about nature is the goal of Prairie Partners' next project in Northfield. This volunteer organization has received a $900 grant from the Northfield Garden Club to fund their work in the Greenvale Lone Oak Nature Area.

The major part of the project will be building an outdoor classroom, which will consist of seven benches grouped together in the prairie/woods area. A teacher will be able to instruct an entire class. The students can be seated, and then pursue their various activities in the nature area. The project will be started in the spring of 2011.

$150 was allotted for 27 species of native flower seeds. They arrived just in time and were scattered before the Nov. 13 snowfall. Some money is allotted for plants, such as ferns, for the woods and prairie.

The sign on the west side of the prairie will be restored, and a park bench will be constructed and placed where visitors may sit and enjoy the sights and sounds of nature.

Additional volunteers are welcome. For more information, contact Laura Bergdahl, 507-645-3537, or Arlene Kjar, president of Prairie Partners, 507-645-8903.

Dues are due now

The MNNPS year starts Jan. 1. If you have not paid your 2011 dues, this is a reminder. You may pay them at the Feb. 3 meeting or mail them to P.O. Box 20401, Bloomington, MN 55420.

Membership categories are:

- Individual or family, $15;
- Student or senior, $8;
- Institution, $20;
- Donor, $25;
- Lifetime, $300.

Tree rings reveal history of Minnesota forest

by Mike Reinikainen, Master of Science student, in conjunction with Dr. Anthony D'Amato of the University of Minnesota Department of Forest Resources, and Shawn Fraver of the USDA Forest Service Northern Research Station. This is an abstract of his talk at the Nov. 4, 2010 MNNPS meeting.

Dendroecology, or the dating of ecologically significant events using tree rings, was used to assess forest disturbance patterns over nine decades and to relate observed patterns to current forest composition within the Northern Wet-Mesic Boreal Hardwood-Conifer Forest (MN native plant community MHn44) in north-central Minnesota. This study was conducted to better understand and inform the management of MHn44 forest communities, which cover nearly 320,000 acres of Minnesota. Understanding how these forests change is imperative to forest management and the provision of a host of ecosystem services.

Here is how MHn44 changes:

Trembling aspen (*Populus tremuloides*) dominated the dense overstory of early forests following severe disturbances. When adequate seed, seedlings, or saplings were available, ensuing forest change was facilitated by the growth of shade-tolerant understory species like balsam fir (*Abies balsamea*) and red maple (*Acer rubrum*) in the low light conditions under the taller aspen stems. The mortality of some young aspen enhanced the growth of understory species. Such mortality occurred as a result of resource competition between neighboring aspen trees and severe forest tent caterpillar (*Malacosoma disstria*) defoliation. Defoliation events are usually brief and typically do not lead to tree death, but tree ring evidence revealed a uniquely prolonged and severe defoliation event that lasted throughout the 1950s and resulted in heavy mortality, even in young aspen. Interestingly, the recorded history of defoliations within Minnesota strongly corroborates these findings.

The mortality resulting from severe and prolonged defoliation of aspen increased species diversity roughly 20 to 30 years into stand development. Canopy gaps resulting from overstory aspen mortality led to increased growing space and increased resources for the growth of other tree species. Species like balsam fir, red maple, and, to a lesser degree, trembling aspen increased in abundance during these periods of canopy tree mortality. Over time, simple aspen stands were made more diverse due to canopy disturbance.

In later decades, periodic tent caterpillar defoliation of aspen and extensive defoliation of balsam fir and white spruce (*Picea glauca*) by Eastern spruce budworm (*Choristoneura fumiferana*) caused elevated mortality of the respective host species. We observed the greatest mortality within populations of balsam fir. While these events reduced diversity of overstory species, they created canopy gaps and contributed large amounts of aspen and balsam fir deadwood material to the forest floor. In the absence of deer herbivory and the presence of adequate seed source, such material may further contribute to the diversification of these forests by providing the necessary substrate for germination of more "finicky" species like Eastern white cedar (*Thuja occidentalis*) and white spruce. Otherwise, regeneration of balsam fir and trembling aspen was highly successful where shrubs like beaked hazel (*Corylus cornuta*) and mountain maple (*Acer spicatum*) were less abundant.

In all, this study pinpoints critical moments in the development of one of Minnesota's most abundant aspen-types, moments where managers may be able to intervene to enhance the diversity and ultimately the ecological function of these forests. Retrospective studies using dendroecology can be used to better inform the management of our changing forest resource.

Pilot program aims to halt new invasive weeds

The City of Maplewood has joined forces with the Ramsey County Cooperative Weed Management Area to begin a pilot monitoring program aimed at stopping new invasive plant species in their tracks. Early detection will allow quick action to prevent buckthorn-like takeovers.

Volunteers are needed to help monitor more than 10,000 acres of parks, trails, open spaces and natural areas. These volunteers will hike on and off trails during optimal detection periods for each species. They will mark locations and report weeds for removal. An informational meeting will be held at 7 p.m. March 22 at the Maplewood Nature Center. Each volunteer will choose a monitoring area. GPS units will be available during training and for each monitoring period. Call 651-249-2170 to register.

For additional information, contact Carole Gernes, Ramsey County Cooperative Weed Management Area coordinator, at 651-792-7977, or carole.gernes@rwmwd.org.

MNNPS website

For information about Society field trips, meetings and events, check the website: www.mnnps.org

Conservation Corner

Current status of rules for wild rice protection

by Beth Nixon

One goal of the MPCA is to protect those surface waters used for the production of wild rice. The quality of these waters will permit their use for irrigation without significant damage or adverse effects upon any vegetation usually grown in the waters.

The current state water rule establishes pollutant standards to be used as a guide for determining the suitability of waters for such uses, including the production of wild rice. The standards specify sulfates at "10 milligrams per liter, applicable to water used for production of wild rice during periods when wild rice may be susceptible to damage by high sulfate levels."

Other substance, characteristic, or pollutant standards for 4A waters are bicarbonates (5 mE/L); boron (0.5 mg/L), minimum (6.0) and maximum (8.5) pH values; specific conductance (1,000 uMhos/cm at 25C); total dissolved salts (700 mg/L); sodium (60 percent of total cations in mE/L); and radioactive materials (not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as prescribed by the appropriate authority having control over their use).

When evaluating any facility or project with potential wild rice impacts, the MPCA will consider all available information to determine which surface waters are used for the production of wild rice. If any surface water is determined to be a wild rice water, the MPCA will evaluate whether there is a reasonable potential for the discharge(s) to cause or contribute to a violation of the applicable water quality standard. If a reasonable potential exists, then the MPCA will establish an appropriate water quality-based effluent limit in the facility permit to protect the applicable water quality standard and the designated uses of the water as a wild rice production water.

The 1997 Statement of Need and Reasonableness (SONAR) was for amending Minnesota Rules Chapter 7050 and 7052 and designated wild rice waters in the Lake Superior Basin. The amendments were to be of limited scope but did call potential additional benefits to these classes of people: those who harvest wild rice for food, recreation, or as an income source; sportspersons, particularly waterfowl hunters; and cultivated wild rice producers and supporting industries. Water level fluctuation (greater than six inches) was identified as the most critical influence on sustained wild rice production. The amendments were considered a starting point to examine additional water quality criteria for wild rice protection to be addressed in future rule-making amendments.

The wild rice rule update, recognizing the important resource value, was placed in Class 4A Agriculture and Wildlife Waters, where the language already existed for the sulfate standard adopted in 1973. The first part prescribes the qualities or properties of the waters of the state that are necessary for the agriculture and wildlife designated public uses and benefits. However, the 1997 amendment, subpart 1, now specifically speaks to ecological uses and benefits of wild rice, this being the only plant resource specifically called out.

MNNPS welcomes new members

The Society gives a warm welcome to 19 new members who joined during the fourth quarter of 2010. Listed alphabetically, they are:

Laura Aldrich-Wolfe, Moorhead;
Peggy Booth, St. Paul;
Jeff L. Emmel, Brooklyn Center;
Doug, Sheila Grow, Minneapolis;
Terri and David Hanke, Shakopee;
David Hanson, Coon Rapids;
Pam Larson Frink, White Bear Lake;
Jenny Lewis, Winona;
Jordan Manuel, St. Louis Park;
Chris Niskanen, Stillwater;
Curt Olen, St. Michael;
Laura Pipenhagen, Zimmerman;
Stephen D. Poole, Eagan;
Michael Reinikainen, Minneapolis;
Priya Shahani, St. Paul;
Karen Sutherland, St. Paul;
Steve Travers, Moorhead.

2010 MNNPS treasurers' report

Ron and Cathy Huber, MNNPS treasurers, have prepared a summary of the Society's accounts, as of Dec. 31, 2010. Assets totaled $17,065.15. Expenses ($17,661.87) exceeded income ($9,831.28) by $7,830.59, primarily because the Society made $7,550 in donations that support its purpose.

Major items in the report include income from membership dues, $3,215. Plant sale income was $566. Symposium income was $5,275; its expenses totaled $3,857.40, for net symposium income of $1,417.60. Dakota Lodge rent for seven months was $2,078.24.

President's column

by Scott Milburn

New DNR Commissioner

My past column touched on the November election and political appointments. One of the most important positions that affect the mission of the Society is commissioner of the Department of Natural Resources (DNR). The newly appointed commissioner, Tom Landwehr, has the resume and background that are appropriate for this position and is in stark contrast to his counterpart in neighboring Wisconsin. Commissioner Landwehr will have to deal with budget constraints and vocal interests for every issue. However, I am optimistic that Tom understands natural resource management and that there is a difference between management and depletion.

State needs volunteers

I would also like to point to something that Governor Dayton mentioned during his inauguration speech. He requested that every capable adult volunteer one day of their time a month. As an all-volunteer organization, we are reliant upon our membership to step forward and donate their skills and time as well. I ask that each one of us contribute in some capacity, either directly with a non-profit natural resource organization, or with a state agency such as the Minnesota Pollution Control Agency or the DNR. These agencies and non-profits are likely to see reduced budgets and private donations in upcoming years, and we can help. One thing to consider is how much we can accomplish as a volunteer army. If each member donated six hours of time in one year, that would amount to a full work year for one person.

Society donations

On a contrary note, we are in a different position financially. Much of our revenue comes from either memberships or symposia. What we charge for memberships and programming has not increased in cost to our members this last decade. Yet, the Society has been in a position of building up our treasury over this time. This is due to keeping our costs low, with our members contributing where needed. We are fortunate to be in a position to donate this excess revenue, with the board not taking this responsibility lightly. In just the past few years, we have donated with the approach of investing these dollars where it benefits many versus a limited few. We have also looked for opportunities to invest rather than declaring an open checkbook to those that are interested.

Earlier in the year, we donated $1,300 to the Bell Museum to assist with costs associated with the digital transformation of the Sand Country Wildlife film by the late Walter Breckenridge. This was a great opportunity to help preserve the legacy of "Breck" and his contributions to natural history. Especially now, it is an important time to think about donating to worthy entities, given the economy and budget forecasts. In December, the board was ambitious and decided to donate additional funds. It was decided that these funds would go to four different entities that are in line with our mission as an organization. We will once again be supporting the efforts of Welby Smith to further his publications on Minnesota plants with a donation of $2,500. Those who have knowledge of his latest work, the *Trees and Shrubs of Minnesota*, understand why it is so important to have this high quality educational resource material available. I am happy to report that the *Trees and Shrubs of Minnesota* is now up for a second printing.

The board also decided to donate to the *Minnesota Conservation Volunteer*, the Bell Museum, and toward the funding of educational kiosks at several of the new Scientific and Natural Areas. Each of these three entities received $1,250 in this round of contributions. Overall, the Society donated $7,550 in 2010, and that should be considered a smart investment for the future.

Oriental bittersweet has invaded state

Oriental bittersweet (*Celastrus orbiculatus* Thunb.) has been found in Winona and on rights-of-way in Anoka, Hennepin and Ramsey counties, the Minnesota Department of Agriculture announced in December. "Oriental bittersweet is considered a serious threat to our forests, based on what it has done in Eastern states," said Monika Chandler, an invasive plant specialist for the department.

The vine is established in many Eastern states and in Canada. Single vines can grow up to 66 feet in length and four inches in diameter. They can strangle and smother trees, dominate the forest canopy, reduce forest productivity and block sunlight from ground-story plants. Their "berries" (capsules) are yellow. Native American bittersweet (*Celastrus scandens*) has orange capsules.

To report an infestation, call the department's pest hot line, 651-201-6684 or 1-800-545-6684, or send an e-mail to arrest.the.pest@state.mn.us

Plant Lore

by Thor Kommedahl

What is pussy willow?

Pussy willow is a shrub or small tree named *Salix discolor* in the willow family (*Salicaceae*).

How did it get its names?

Salix is the classical Latin name for willow. *Discolor* refers to the contrast in color between the upper and lower leaf surfaces. "Pussy" denotes the furry male catkin, which is appropriate, as catkin means kitten in Polish.

What does the plant look like?

The pussy willow shrub has an extensive root system and usually multiple stems. The leaves are elliptical with a smooth upper green surface and a felt-like, lower whitish surface. The flowers are either male or female, borne in structures called catkins. The male catkin is the silky "pussy," and a female catkin comprises fruits as capsules containing seeds that are dispersed by wind.

Where does the plant grow?

Pussy willow is an opportunistic shrub that grows quickly along streams, swamps, and moist to wet locations, but rarely on prairies, in most Minnesota counties.

Are there medicinal properties?

The Greek physician Dioscorides in the first century prescribed willow bark for treating fevers and pain. The active ingredient was later identified as salicin, then salicylic acid, which centuries later was modified to acetylsalicylic acid and synthesized as aspirin.

What is the legend of pussy willows?

The legend hangs on a Polish tale about willows rescuing kittens from the river. Dot McGinnis wrote a poem, excerpted as follows:

...To reach the kittens was their goal;
A rescue mission, heart and soul.
...Tiny fur like buds are sprung
Where little kittens once had clung.

Do we value pussy willows in our culture?

Its extensive root system enables the shrub to hold soil together, valuable for erosion control, but sometimes incompatible with garden or landscape plants. By collecting stems in late winter and bringing them indoors, they will bloom and serve for table arrangements.

Pussy willows are harbingers of spring!

New field guide identifies aquatic Wisconsin plants

Aquatic Plants of Wisconsin: a Photographic Field Guide to Submerged and Floating-leaf Aquatic Plants, by Paul M. Skawinski, published by Wisconsin Lakes, 2010, $34.

Review by Russ Schaffenberg

Because we need more awareness in the general public about aquatic plants, and more people to watch for invasive species, this book is a good thing and should help the cause. It is portable and has photos, which many people prefer. At only 6" x 9" x ½" thick, this glossy, spiral-bound book is small and portable but contains a lot of information and 280 photos.

Salix discolor *male catkins (top) and leaves. Photos courtesy of Welby Smith.*

On the back cover is stated: "*Aquatic Plants of Wisconsin* is a full-color, photographic guide to Wisconsin's true aquatic plants, highlighting 120 species. This guide is designed to be comprehensive and user-friendly for professionals and casual users alike."

The book uses leaf shapes and arrangements to separate plants into eight groups; then you look through that section to identify your plant. In the Appendix, traditional keys are also provided for three of the genera, *Myriophyllum, Utricularia* and *Sparganium*, courtesy of Dr. Robert Freckmann, who served as a technical advisor. When you open the text, you see two species presented on the two facing pages, with the photos on the right page and the text on the left. The text states the name, habitat, status, water type, distribution, form, what other plant looks most similar to it, and a short paragraph on identification. Key characteristics are in bold type.

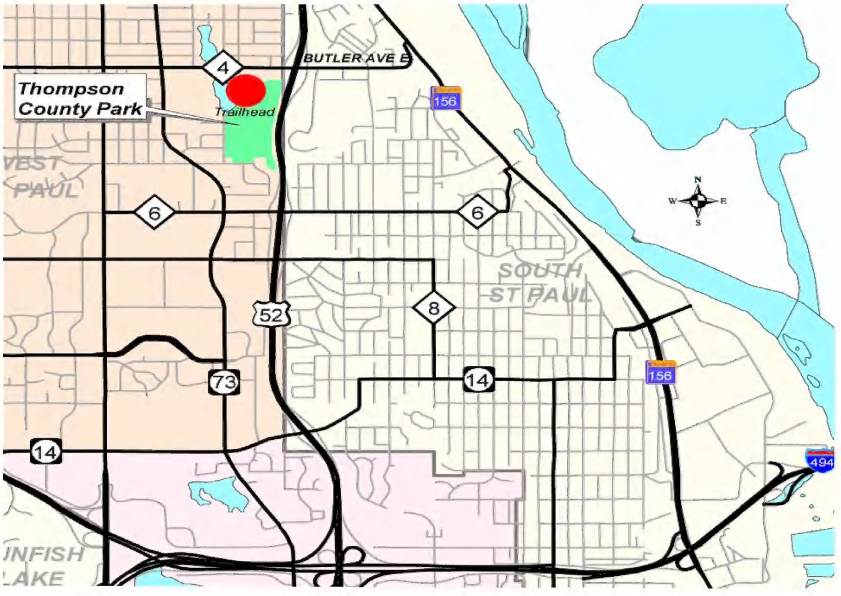
This book will encourage more people to learn about aquatic plants and watch for invasive species. Until now, the popular and widely used 1997 Wisconsin DNR/Lakes Partnership publication, *Through the Looking Glass: A Field Guide to Aquatic Plants* (DNR #FH-207-97), has filled this niche. It remains an excellent book. It is 8½" x 11," paperback, has illustrations rather than photos, and separates plants into four groups: emergent, free-floating, floating-leaf and submersed.

Both books include several non-vascular aquatic plants, such as liverworts and algae. Skawinski did not include emergent plants (cattails, wild rice, etc.). He did include a few sometimes puzzling species that are typically terrestrial/emergent but often have aquatic forms, such as *Galium, Glyceria, Sagittaria, Berula,* and *Juncus pelocarpus*.

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420

Winter 2011

Thompson County Park:
360 Butler Ave East, West St. Paul, MN 55118



Directions:
Take MN Hwy. 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 mile to Stassen Lane.
Go south on Stassen Lane to Thompson County Park.

Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

www.mnnps.org

Volume 30 Number 2 **Spring 2011**

Monthly meetings

Thompson Park Center/Dakota Lodge
Thompson County Park
360 Butler Ave. E.,
West St. Paul, MN 55118

Programs

The Minnesota Native Plant Society meets the first Thursday in October, November, December, February, March, April, May, and June. Check at www.mnnps.org for more program information.

6 p.m. — Social period

7 – 9 p.m. — Program, Society business

May 5: "Grazing Plans with Conservation Priority in Minnesota Native Prairie Bank Sites," by Paul Bockenstedt, Bonestroo, and Jason Garms, DNR. **Plant-of-the-Month:** Licorice bedstraw (*Galium circaezans var. hypomalacum*) by Mr. Bockenstedt.

June 2: "Plant Communities of Vermilion State Park," by Tavis Wesbrook, parks and trails regional specialist, DNR. **P-O-M:** Alpine woodsia (*Woodsia alpina),* also by Mr. Westbrook. **Plant Sale.**

Oct. 6: "Delays in Nitrogen Cycling and Population Oscillations in Wild Rice Ecosystems," by Dr. John Pastor, professor, Department of Biology, U of M, Duluth. **P-O-M:** Wild Rice (*Zizania palustris*), also by Dr. Pastor.

Plant sale requirements

By 6 p.m., bring labeled potted native plants (not cultivars) dug from your property in Minnesota.

New research reveals more harmful impacts of invasive earthworms

by Dr. Lee E. Frelich, Department of Forest Resources, University of Minnesota. This is a summary of his talk at the Feb. 3 MNNPS meeting.

Invasive European earthworms have been shown to cause a number of impacts at the ecosystem and plant community level, which were briefly reviewed. Principle among these are changes in the structure of the soil — loss of the organic horizon of the soil (along with its insulating and erosion preventing properties), and increase in bulk density. This results in lower availability of nitrogen and phosphorus and more run-off during heavy rain events. In turn, these changes cause loss of species richness among native plants, increased susceptibility of plants to deer grazing via a double whammy effect of earthworms combined with deer grazing, and replacement of a lush and diverse plant community with a relatively simple community dominated by fewer species.

Recent advances in research were the main focus of the presentation and included earthworm interaction with climate change; facilitation of invasive plant species; longer ecological cascades, referred to as invasional meltdown; and impacts on birds, other vertebrates, and water quality.

The changes in soil structure and nutrient status mentioned above make trees more susceptible to drought at the same time as drought frequency is increasing due to climate change. This will help reinforce the negative effects of climate change on forests within a few hundred miles of the prairie-forest border in the Upper Midwest. Earthworms also create a signature in the rings of trees at the time of invasion — ring widths of sugar maple, for example, are narrowed by about 30 percent. Recovery of ring width occurs a few decades later, but it is not clear at this time whether the trees recover from the changes cause by earthworms, or whether the forest undergoes a period of increased mortality so that a lower of density of trees allows the surviving trees to grow faster due to less competition.

Several papers have been published recently, which combined

Continued on page 3

In this issue

President's column 2
Spring field trips 3
Lakeshore plantings 4
Winona County *Larix* 5
Lifetime member Linda Huhn.5
Mushroom book list 6
New members.....6
BioBlitz events 7
Plant Lore: Twinleaf 7

President's column

by Scott Milburn

The Society elected three new board members at the annual meeting in March. These new members, Dr. Peter Jordan, Mike Lynch, and Otto Gockman, are all new to the board. A small write-up of these three individuals will be included in the next *Minnesota Plant Press*.

We had our annual symposium at the Bell Museum on March 26th. This was our fifth year at the Bell, and I would like to thank the folks who helped out. The event was very well attended, with more than 150 people present. It is my hope to keep the current committee together for the 2012 symposium. A topic has yet to be decided, but we will be reviewing the evaluations soon for possible ideas.

Another item handed out this year was a questionnaire regarding a five-year strategic plan for the Society. The last few questions were in regards to exploring the idea of donating Welby Smith's recent *Trees and Shrubs of Minnesota* book to every public high school in the state. The majority of the responses were very positive, and the Board will be exploring this possibility over the next year. This will not be an inexpensive endeavor, but it would be a great long-term investment in our youth.

Counter to that proposal was a recent amendment to House Bill HF1010 which would allow for logging of oak and walnut trees at Frontenac and Whitewater state parks. As of now, this amendment was removed from the bill, but it could reappear. It raises questions about short-sighted political maneuvering in difficult economic times.

Those who care about natural resources need to be diligently reading the amended items that end up in proposed legislation. This amendment to allow logging might have passed through the House had it not been publicized in the news.

I hope that as a Society we can be the ones shedding light on these issues and raising awareness. We have the ability through our blog and Facebook page, but we need responsible members to take the initiative and to help keep us all informed.

Minnesota Native Plant Society's purpose

(Abbreviated from the bylaws)

This organization is exclusively organized and operated for educational and scientific purposes, including the following.

1. Conservation of all native plants.
2. Continuing education of all members in the plant sciences.
3. Education of the public regarding environmental protection of plant life.
4. Encouragement of research and publications on plants native to Minnesota.
5. Study of legislation on Minnesota flora, vegetation, ecosytems.
6. Preservation of native plants, plant communities, and scientific and natural areas.
7. Cooperation in programs concerned with the ecology of natural resources and scenic features.
8. Fellowship with all persons interested in native plants through meetings, lectures, workshops, and field trips.

MNNPS Board of Directors

President: Scott Milburn, scott.milburn@mnnps.org

Vice President: Shirley Mah Kooyman, shirley.mah.kooyman@mnnps.org

Secretary, program coordinator**: Andrés Morantes,** andres.morantes@mnnps.org

Treasurers, membership data base**: Ron and Cathy Huber,** ron.huber@mnnps.org

Ken Arndt, board member, field trip chair, ken.arndt@mnnps.org

Michael Bourdaghs, board member, michael.bourdaghs@mnnps.org

Elizabeth Heck, board member, webmaster, elizabeth.heck@mnnps.org

Daniel Jones, board member, daniel.jones@mnnps.org

Dylan Lueth, board member, dylan.lueth@mnnps.org

Elizabeth Nixon, board member, conservation committee chair, beth.nixon@mnnps.org

Erika Rowe, board member, erika.rowe@mnnps.org

Field Trips: fieldtrips.mnnps@mnnps.org

Memberships: memberships.mnnps@mnnps.org

Historian-Archives: Roy Robison, historian-archives.mnnps@mnnps.org

Technical or membership inquiries: contact.mnnps@mnnps.org

***Minnesota Plant Press* Editor: Gerry Drewry,** 651-463-8006; plantpress.mnnps@mnnps.org

Changes in the board

Dr. Peter Jordan, Mike Lynch, and Otto Gockman will replace three board members whose terms expire in June. Derek Anderson and Russ Schaffenberg recently resigned.

Earthworms

Continued from page 1

with my observations, show that earthworms facilitate the invasion of European buckthorn (not to be confused with our native buckthorn that grows in swamps of northern Minnesota), tatarian honeysuckle, garlic mustard, black swallowwort, Japanese barberry, hemp nettle (*Galeopsis tetrahit*), and *Veronica officinalis*. These species coevolved with earthworms on their home continent and germinate and survive best under bare mineral soil conditions created by earthworm invasion. In addition, a longer chain of invasional meltdown has been detected, whereby earthworm invasion facilitates European buckthorn in woodlots in agricultural areas. European buckthorn is the overwintering host of the soybean aphid (a major pest for farmers in recent years), which in turn is the food source for exotic ladybeetles that become pests and cause allergies in people's houses in October.

Earthworms also impact habitat for vertebrate wildlife species. Ground-nesting birds such as ovenbird and hermit thrush have been shown to have lower nest density in earthworm-infested areas by Scott Loss, a Ph.D. candidate in Conservation Biology at the University of Minnesota. Research conducted in upstate New York shows that salamanders are negatively impacted by European earthworm invasion.

Finally, the loss of the organic horizon (duff layer) and greater bulk density of soils can influence water quality of lakes invaded by European earthworms, even in remote areas like Itasca State Park. We know that there is more runoff and erosion, as well as leaching of nutrients such as P, when earthworms invade. University of Minnesota limnologist Jim Cotner and his intern Hal Halvorson showed that level of watershed infestation in six small lakes in Itasca Park was related to measures of eutrophication.

The circle of invasive earthworm research is ever widening. Earthworms truly deserve the title of "Ecosystem engineers," as well as Darwin's comment in his 1881 book: "*It may be doubted whether there are many other animals which have played so important a part in the history of the world, as have these lowly organized creatures.*"

Spring field trips

by Ken Arndt, MNNPS field trip coordinator

Hastings Scientific and Natural Area

Saturday, April 23

Join field trip leaders Scott Milburn (MNNPS president and senior botanist/ecologist for Midwest Natural Resources) and Ken Arndt (MNNPS board member and forest ecologist for Critical Connections Ecological Services) at Hastings SNA for an afternoon of hiking and early spring wildflower identification. A highlight to the field trip will be seeing the rare snow trillium (*Trillium nivale)* in bloom.

This field trip will be limited to 20 MN NPS members.

Eloise Butler Wildflower Garden and Bird Sanctuary

Saturday, May 7, 10 a.m. to noon

MNNPS members will take a tour with trip leaders Elizabeth Heck (MNNPS board member and Eloise Butler Wildflower Garden naturalist) and Shirley Mah Kooyman (MNNPS vice president and wildflower enthusiast) through Eloise Butler Wildflower Garden, the oldest wildflower garden in the country. This historic garden is home to over 500 species of plants, all within 14 acres.

Due to the narrow trails within the garden, this field trip will be limited to 20 MNNPS members.

Hastings Sand Coulee Scientific and Natural Area

Thursday June 9, 6 to 8 p.m.

By popular demand, we are offering this trip for a third year in a row. Join field trip leaders Karen Schik (ecologist for Friends of the Mississippi River), Tom Lewanski (conservation director for Friends of the Mississippi River), and Dave Crawford ("retired" naturalist from Wild River State Park) for an evening hike into one of the DNR's newest Scientific and Natural Areas. Hastings Sand Coulee is a dry sand prairie about 80 acres in size located just beyond the southern edge of the City of Hastings.

This is a joint field trip with Friends of the Mississippi River and will be limited to 15 MNNPS members.

For additional information about these trips, go to our website at www.mnnps.org and follow the link to the field-trip page. Details on driving directions and meeting areas will be e-mailed to participants who register for each trip.

More trips are being planned for summer and fall. Watch for e-mail updates.

A friendly reminder: our field trips are for members only. If you would like to become a member or if you need to renew your membership, now is a great time to join. Renew by downloading a membership form from our website (www.mnnps.org) or use PayPal at the website. Just follow the link to Membership from the home page. I hope to see some of you at an upcoming field trip.

Have you read our blog?

It is on the MNNPS website: www.mnnps.org

Lakeshore plantings can maintain access while protecting shore, views

by Rusty Schmidt, natural resources specialist, Washington Conservation District. This is a summary of his talk at the March 3 MNNPS meeting.

Rusty Schmidt showed from start to finish several projects throughout the metro area. Most were sunny shorelines with lawn-grass shores that were replaced with native upland and transitional shorelines all the way into the water, with some aquatic plants. The plantings were very showy, with a number of blooming plants throughout the year.

The average shoreline owners value their shore of a lake, stream or wetland for the ability to access the water and the views. To accomplish these goals, practical designs can be created by planting and maintaining good aquatic vegetation within the water, then a transition of plants that like moist to wet soils, and finally an organized upland planting that still provides the views the landowner desires and access to the water's edge.

Trees and shrubs are perfect to provide screening for certain areas and to frame views. The closer the tree is to the viewpoint up the bank, the less obstructive it is to the shore view. Yet it still provides habitat and shade. By creating the complete shore with all levels of structure, habitat is also provided for wildlife.

The upland portion of the planting should have some organization and regard to aesthetics, with more flowers than grasses, and easy access to the shore and showy plants. The transitional plantings should be chosen for habitat and toleration of water fluctuations and have a higher ratio of grasses and sedges with the fibrous root systems. Plantings in the water will protect the shore from some of the wave action and provide fish and aquatic insect habitat. Typically, aquatic plantings will need larger plants planted. They will absolutely need permits before that portion of the projects can begin.

Some of the materials that will be needed will include a wave break, that may be a fence or biolog, to slow down the wave action hitting the shore. Biologs are shredded coconut fibers bound into a big log with various dimensions. They provide resistance to wave action; substrate for plants planted into them; and capture sediment from upland areas. Other materials that can be used are Enviro-loc Bags, which are sandbags made of filter fabric and filled with the soil media. Once filled, they can be stacked into a wall or used for slowing down water in a flow, as a check dam or wing dam. Then the bags are planted with deep-rooted plants that will take over the bags in time.

Another option is to use Pre-Vegetated Erosion Blankets. These blankets are pre-ordered for a site with two layers of blanket and soil placed between with seed that is specified for the site. The seed is grown, and then the blanket is cut and rolled like sod. Once delivered to the site, the sod is rolled out on site for instant shoreline planting.

New plantings need site preparation and protection from rabbits and geese. Fences are the best defense against unwanted critter invasions of the new plantings. Other methods include sprays and a deer scarecrow.

Three options for site preparation are smothering, mechanical, and chemical preparation. The smothering method uses black plastic or newspapers to smother the existing plants and seeds on site. The mechanical method uses a sod cutter or larger soil mover like a skid-steer or bulldozer. The most common method for ease and cost is to use a glyphosate chemical of Rodeo or Round-up or one of the generics. Round-up is to be used in the upland. Anywhere near the shore, Rodeo or its generic counterparts should be used.

Plant-of-the-Month
Chelone glabra

Photo by Peter Dziuk.

by Rusty Schmidt.

Chelone glabra (turtlehead) has an interesting flower head that when pinched looks like it is a talking turtle, similar to a snapdragon. Also similar to bottle gentian, this flower is pollinated only by the large bumble bees, as its flower opening is difficult to enter to get to the nectar source at the back. Turtlehead is a robust perennial one to three feet high, has a bluntly angled stem and opposite, elongate and coarsely toothed leaves. It is found in grassy and bushy meadows and will thrive in all but the deepest shade. It prefers moist soils.

On *Larix* in Winona County

by Philip A. Cochran, Ph.D., professor, chair of Biology Department, Saint Mary's University, Winona, Minn.

There is a tamarack (*Larix laricina*) on the Saint Mary's University campus. I assume that it was put there by the botanist who founded our biology department, Brother Charles Severin (1896-1992), because it sits in line with a ginkgo (*Ginkgo biloba*) and a bald cypress (*Taxodium distichum*) next to our science building in a convenient location for demonstrating deciduous gymnosperms.

Tamaracks have not been formally documented from Winona County (G. B. Ownbey and T. Morley 1991, W. R. Smith 2008), but L.H.Bunnell (1897) noted that they occurred on bluffs in Homer, and unlike certain other tree species, he did not indicate that they had escaped cultivation. Moreover, the botanist John Holzinger (1913) also listed them among the trees of Winona County.

Across the Mississippi River in Trempealeau County, tamaracks are known from bog-like habitats along Tamarack and Little Tamarack creeks, and they may sometimes grow from acidic sandstone outcrops in southwestern Wisconsin (Hansen 1933). They can be easily observed along Tamarack Creek by driving north along State Highway 93 from Centerville in the fall, and some can still be seen in upland habitat along side roads.

On Nov. 15, 2006, I was driving along Old Homer Road southeast of Winona, when I noticed multiple golden spires of what could only have been *Larix* on a steep forested bluffside overlooking the lowlands along Pleasant Valley Creek. At least two dozen trees of various sizes extended along approximately 100 meters of north-facing slope behind private residences along Old Homer Road, and once I knew they were there, I could see them from U.S. Highway 61.

It took me some time to get permission to access the slope behind one of the homes, but on Aug. 1 and Oct. 24, 2007, I was able to secure some samples (Bell Museum 918878). The relatively large cones and long needles revealed that the trees were not tamaracks, but rather European larch (*L. decidua*), and the presence of many saplings indicated that successful reproduction had occurred. Later, I found several additional larches growing from sandstone outcrops along Garvin Heights Road in Winona. Once again I was alerted to their presence by their golden foliage persisting after most other trees had dropped their leaves. In this case, an obvious source was a large tree in the Woodlawn Cemetery downslope from Garvin Heights Road. W. R. Smith (2008) noted reports that European larch had escaped cultivation in the eastern U.S.

For some reason, a European larch does not occur next to the tamarack, cypress, and ginkgo outside our science building on the Saint Mary's University campus. I have noted a tendency for some of our staff to assume that the cypress is a European larch, and an outside consultant hired by our grounds department listed it erroneously as a dawn redwood (*Metasequoia glyptostroboides*), another deciduous species. The latter can be found, along with a cypress, on the Winona State University campus. The only European larch on the Saint Mary's campus grows along the upper edge of the wooded terrace slope east of Saint Joseph Hall.

Native Plant Expo-June 4

Landscape Revival: Native Plant Expo and Market will be Saturday, June 4, 9 a.m. to 3 p.m., at Roseville Rainbow Foods Pavilion, at the northeast corner of Larpenteur Ave. and Fernwood St.

Linda Huhn is lifetime member

Linda Huhn, long-time program coordinator for the Society, was awarded the Lifetime Membership Award during the Symposium program. In her thank-you to the board, she wrote:

"Serving on the board, being secretary for a year and coordinating the programs was a great honor for me, not to mention educational and fun. I did the programs for as long as I did because of the example of others working for the Society, and I just could not quit when all of you were giving so much.

"Preserving Earth's beauty and living sustainably is something I learned from my Dad Delmar, the guy who took our family on trips around Minnesota, but mostly out west. … The Nature Conservancy showed me later, in my adult life, how beautiful Minnesota itself is, and I made it a goal to see it and do what I could to preserve the beautiful places. The Plant Society seemed like home when I discovered it and made so many friends."

Emerald ash borers cross Mississippi

Ash trees along West River Parkway in south Minneapolis are now infected with emerald ash borers. About 100 of these trees along the river and another 100 in the previously infected Prospect Park neighborhood will be cut soon. Last year, 1,400 ash trees in other parts of the city were cut as preventive measures.

Treasurers' report

Treasurers Ron and Cathy Huber report that in the first quarter of 2011, the Society had total income of $8,829.13. This was mainly from membership dues and Symposium registration fees. Expenses totaled $3,992.16, primarily Symposium costs. Assets on March 31, including CDs, totaled $19,945.66.

Illustrated books about Minnesota mushrooms

by Dr. David McLaughlin, Department of Biology, University of Minnesota. He spoke at the April 7 MNNPS meeting.

The book that I most recommend for the beginner is the one by George Barron. Several of these books are nation-wide in coverage, and a significant number of the species may not occur here.

No book covers all Minnesota mushrooms, as there are regional differences in mushroom floras. Two that focus on nearby states (Courtney and Burdsall, Huffman et al.) are likely to have use here, but may cover only some parts of the state, as the mushroom flora changes in the different biomes.

Barron, G. L. 1999. *Mushrooms of Northeast North America.* Lone Pine Publishing Co., Edmonton and Vancouver, Canada; Renton, Wash. (A good book to start with.)

Bessette, A.E., et al. 1997. *Mushrooms of Northeastern North America.* Syracuse University Press.

Courtenay, B. and H. N. Burdsall, Jr. *A Field Guide to Mushrooms and Their Relatives.* 1982. Van Nostrand Reinhold Co., New York. (Wisconsin fungi).

Grove, J. W. *Edible and Poisonous Mushrooms of Canada*, revised ed., 1975. Research Branch, Canada Department of Agriculture, Ottawa, Ontario.

Huffman, D.M., et al. *Mushrooms and Other Fungi of the Midcontinental United States.* 2nd ed. 2008. University of Iowa Press, Iowa City. (Iowa and parts of surrounding states.)

Kibby, G. *Mushrooms and Other Fungi.* 1992. Smithmark Publisher., New York.

Lincoff, G. H. *The Audubon Society Field Guide to North American Mushrooms.* 1981. A. A. Knopf, Inc., New York.

McFarland, J. and G. M. Mueller. *Edible Mushrooms of Illinois and Surrounding States.* 2009. University. of Illinois Press, Urbana and Chicago.

Miller, 0. K., Jr. and H. H. Miller. *North American Mushrooms*. 2006. Globe Pequot Press, Guilford, Conn.

Phillips, R. *Mushrooms of North America.* 1991. Little, Brown and Co., Boston.

Smith, A.H. and N.S. Weber. *The Mushroom Hunter's Field Guide.* 1980. University. of Michigan Press, Ann Arbor.

MNNPS welcomes new members

The Society gives a warm welcome to 22 new members who joined during the first quarter of 2011. They are:

Marcus W. Beck, St. Paul;
James G. Carlson, Lake Elmo;
Nancy Carlson, Isanti;
Christopher Currey, Lafayette, Ind.;
Troy Eagan, Rochester;
Steve Emmings, Excelsior;
Karen Stout Heller, Verndale;
Anita P. Hoaglund, St. Paul;
Jacob and Kathryn Huebsch, Jordan;
Dorothy J. Jachim, Stillwater;
Michael Kaluzniak, St. Paul;
Ruth Henriquez Lyon, Duluth;
Cathleen Marquardt, Eagan;
Megan Kranz McGuire, St. Paul;
Stephanie McNamara, White Bear Lake;
Chad and Shannon Skally, St. Paul;
Paul and Alex Skawinski, Stevens Point, Wis.;
Edward Stec, Wyoming;
Mary Williams, White Bear Lake.

New pollinator program will create native habitats

Native Habitat Development for Pollinators is a new U.S. Department of Agriculture option for farmers enrolled in the Conservation Reserve Program (CRP). It is defined as "restoring and conserving native plant communities to benefit pollinators and associated wildlife species."

This plan requires plantings that contain at least three species from each flowering group — early, mid- and late-season. The seed mixes must consist of at least nine native species, including two or three grasses. The grasses may not exceed 25 percent of the seed mixes. Minimum acreages range from 1 acre to 10 percent of total CRP acreage.

Conservation Corner

by Elizabeth Nixon

Rep. Steve Drazkowski (R, Mazeppa) proposed an amendment to an environmental finance bill that would require logging at Frontenac and Whitewater State Parks. This surprise amendment was tacked onto the large environmental finance bill in late March but was not included in the final bill. However, it could resurface during the continuing budget battles.

Examination suggests that elected officials did no research to understand what native forest communities look like and the critical roles black walnut and oak play in the long-term viability of forest ecosystems.

Conserving Minnesota native plant communities is critically dependent on each of us demanding credible, full disclosure research by those we elect to represent us.

Plant Lore

by Thor Kommedahl

What is twinleaf?

Twinleaf is *Jeffersonia diphylla* in the barberry family. It is also called rheumatism root.

How did it get its names?

Jeffersonia was named for Thomas Jefferson, who was then U.S. Secretary of State, by his friend Benjamin Smith Barton, later a professor at the University of Pennsylvania. He wanted to honor Jefferson's considerable interest in natural history. *Diphylla* (two leaves) and twinleaf describe the one or few basal leaves, almost divided into two half-ovate parts. Rheumatism root was so named because American Indians used a wash from its roots and rhizomes to treat rheumatism.

Who discovered twinleaf?

André Michaux found the plant in Virginia and gave it to John Bartram, who planted it in his garden. Benjamin Barton saw it there, described and named it after Jefferson, and published the description.

What does the plant look like?

It is a perennial, 4 - 18 inches tall, with a leaf divided at the base to look like two paired leaves, and one or more leafless flower stalks (scapes) with a single white flower of eight petals on top. They resemble bloodroot flowers. The fruit is a pear-shaped, green capsule with a lid on top. Twinleaf blooms from April to May, and plants are gone by August. The flowers last only a couple of days.

Where does it grow?

Twinleaf grows in rich, moist woods in about five counties in the southeast corner of the state. It is usually found over limestone or other calcareous rocks, and is more abundant east of Minnesota. The only other *Jeffersonia* species grows in northeastern China and Korea (explained by the continental drift).

Photo of twinleat (*Jeffersonia diphylla*) by Peter Dziuk.

Is it edible, medicinal, or poisonous?

Not edible. American Indians made a root tea for dropsy, diarrhea, urinary ailments, and applied it as poultices for sores and ulcers. It contains the alkaloid berberine, an antibiotic, and has also been used in eyedrops, for treatment of leishmaniasis, and experimentally for diabetes and cardiovascular conditions. Berberine can also be toxic.

Can it be grown as a garden plant?

It grows well in shaded, moist garden soil for an early spring flower, but it doesn't last long. Seeds do not store well. Ants disperse seeds; rodents cache them for later consumption.

Lost and Found

Two thermos containers (silver one had two tea bags, pink one had coffee) were found after the Symposium held at the Bell Museum March 26. If you lost either one, please contact Shirley Mah Kooyman at 763-559-3114 or smkooyman@gmail

Three BioBlitz events are being planned

Individuals and families are invited to participate in BioBlitzes at Lake Vermilion/Soudan state parks, Macalester College's Ordway Field Station in Inver Grove Heights, and Blomberg Lake SNA in Wisconsin. Participants will help count and map flora and fauna, from bacteria to insects, plants, birds and animals.

Soudan Underground Mine, Lake Vermilion state parks; June 25, 12 noon – 12 noon, June 26.

The Minnesota DNR is looking for participants and team leaders. Inventories and programs will take place at established times throughout the 24-hour period. Details will be posted on the Lake Vermilion State Park website (www.mndnr.gov/vermilion). For more information, send an e-mail to tavis.westbrook@state.mn.us

Macalester's Ordway Field Station, Inver Grove Heights; Friday, June 10, 5 – 11:59 p.m.

The Katharine Ordway Natural History Study Area is located at 9550 Inver Grove Trail, Inver Grove Heights. This BioBlitz is co-sponsored by Macalester College, the Mississippi National River and Recreation Area (MNRRA), and the Mississippi River fund. For information, contact dosch@macalester.edu

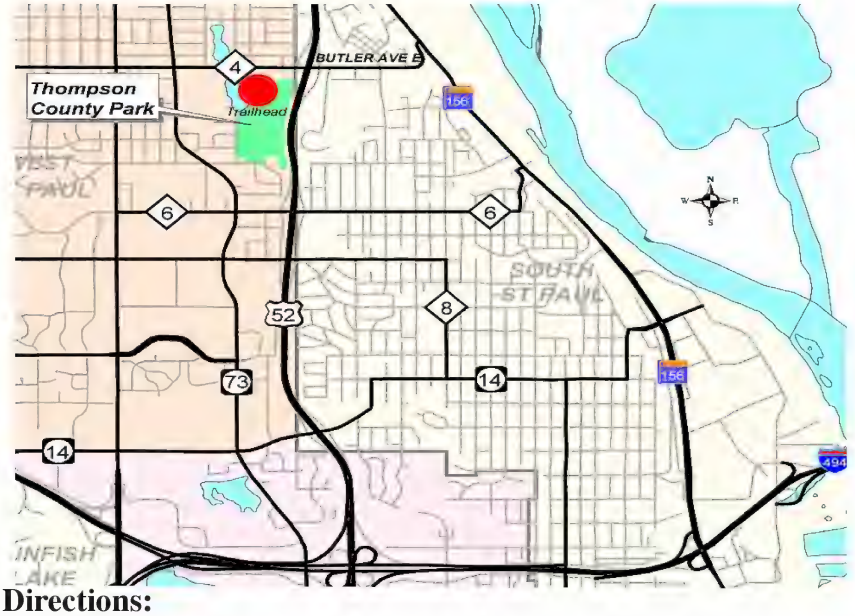
Blomberg Lake SNA, Burnett County, Wisconsin
July 9, 12 noon - 6 p.m.; July 10, 9 a.m. - 3 p.m.

This SNA is north and west of Siren, Wis. Details will be available from the Botanical Club of Wisconsin website (https://sites.google.com/site/botanicalclubofwisconsin/). Contact Paul Skawinski at lakeplants@yahoo.com or go to the Blomberg Lake SNA page on the Wisconsin DNR website.

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420

Spring 2011

Thompson County Park:
360 Butler Ave East, West St. Paul, MN 55118



Directions:
Take MN Hwy. 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 mile to Stassen Lane.
Go south on Stassen Lane to Thompson County Park.

Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

www.mnnps.org

Volume 30 Number 3 **Summer 2011**

Monthly meetings

Thompson Park Center/Dakota Lodge
Thompson County Park
360 Butler Ave. E.,
West St. Paul, MN 55118

Programs

The Minnesota Native Plant Society meets the first Thursday in October, November, December, February, March, April, May, and June. Check at www.mnnps.org for more program information.

6 p.m. — Social period

7 – 9 p.m. — Program, Society business

Oct. 6: "Delays in Nitrogen Cycling and Population Oscillations in Wild Rice Ecosystems," by Dr. John Pastor, professor, Department of Biology, U of M, Duluth. **Plant-of-the-Month:** Wild Rice (*Zizania palustris*), also by Dr. Pastor.

Katy Chayka creates Minnesota wildflower field guide on internet

Katy Chayka, who supervises the MNNPS blog, has created *Minnesota Wildflowers*, an online field guide with details about more than 500 Minnesota wildflowers. Peter Dziuk, a former Society board member, donated about 50,000 photos to the project.

Katy's website (www.minnesotawildflowers.info) organizes plants by color, time of bloom, and scientific name. Information includes a detailed description, habitat, and a map.

Plants and Politics

by Scott Milburn, MNNPS president

The recent state government shutdown serves as a sad chapter in the state's history, and it will likely have continued impacts once the budget is finalized. These include lost revenue from money typically spent during this period on natural resources, including such items as fishing licenses and camping permits at the state parks. Not only did these impacts affect state coffers, but they also hurt the businesses that rely on summer travelers.

I am greatly disappointed with those politicians who seem to serve only out of self-interest rather than serving to represent the best interests of the general population. With that, I encourage our members to make a special effort this year to take a trip somewhere new in the state and to visit a state park or one of our great Scientific and Natural Areas. In doing so, each one of us can support the various local economies and, ultimately, Minnesota itself.

Another positive benefit of these trips is that each one of us can learn during the process, from finding an unfamiliar plant to seeing a unique landform. This also provides an opportunity for our members to contribute what they are seeing on our blog or in the newsletter.

Travelling around the state also makes one appreciate Minnesota and the fact that we still have intact natural areas, especially compared with other states in the cornbelt. Think about all of the diversity and great landscapes from the North Shore to the Prairie Coteau, from the Aspen Parklands to the Driftless Area, and the great adventures to be had.

Plant XID-CD Updates

by Ron Huber

Bruce Barnes has updated the Minnesota and the Great Plains plant identification XID-CDs. Improvements include more than 1,900 new or higher resolution images and nomenclatural changes conforming to those in Welby Smith's *Trees and Shrubs of Minnesota*. Prices remain the same —$70 Minnesota, $150 Great Plains. If you purchased an earlier version, e-mail Bruce at flora.id@wtechlink.us and he will send the newly updated CD for a $6 shipping charge. (We have provided him with the names of all previous buyers.)

In this issue

New members 2
Society news 2
Wetland Plants book review....3
Hastings field trip.....3
Minnesota mushrooms 4
New board members 6
Landscape tour 6
DNR photo opportunity 7
Plant Lore: Goldthread 7

MNNPS welcomes new members

The Society gives a warm welcome to 23 new members who joined during the second quarter of 2011. Listed alphabetically, they are:

Barbara Asmus, St. Louis Park, Minn.;
Joseph M. Beattie, Hastings, Minn.;
Kristen Blann, Cushing, Minn.;
Marshal Braman, no data (PayPal);
Christina Crowther, Chanhassen, Minn.;
Christine Dolph, Minneapolis;
Ann Fallon, Afton, Minn.;
Jason Garms, St. Paul;
Anna Gerenday, Afton, Minn.;
Leslie Gillette, Hopkins, Minn.;
Brian Goodspeed, Falcon Heights, Minn.;
Happy Dancing Turtle, Pine River, Minn.;
Steve Heiskary, Lino Lakes, Minn.;
Debra Henninger, Arden Hills, Minn.;
Marcel Jouseau, St. Paul;
Kelly Kallock, Minneapolis;
Tom Meersman, Minneapolis;
Minnesota Life College, Richfield, Minn.;
Maddy Papermaster, Marine, Minn.;
Wendy Paulsen, Chisago City, Minn.;
Ron Spinosa, St. Paul;
Lisa Steidl, Coon Rapids, Minn.;
Tavis Westbrook, Duluth, Minn.

Patience, please if you use PayPal

by Ron Huber

If you prefer to pay your dues using PayPal, please remember to patiently wait for the pop-up of the membership data form. Otherwise, we have no info about you except for the e-mail shown. That may not be the one that you want to use when receiving newsletters, postcards, etc. Thank you for your patience.

Treasurers' report

Treasurers Ron and Cathy Huber reported that in the second quarter of 2011, income exceeded expenses by $4,964.72. Income included: Symposium, $6,228; plant sale, $434; membership dues, $2,831. Expenses included: Symposium, $4,216.51; printing, $878.91; postage, $296.92. Assets totaled $22,035.61.

Minnesota Native Plant Society's purpose

(Abbreviated from the bylaws)

This organization is exclusively organized and operated for educational and scientific purposes, including the following.

1. Conservation of all native plants.
2. Continuing education of all members in the plant sciences.
3. Education of the public regarding environmental protection of plant life.
4. Encouragement of research and publications on plants native to Minnesota.
5. Study of legislation on Minnesota flora, vegetation, ecosytems.
6. Preservation of native plants, plant communities, and scientific and natural areas.
7. Cooperation in programs concerned with the ecology of natural resources and scenic features.
8. Fellowship with all persons interested in native plants through meetings, lectures, workshops, and field trips.

MNNPS Board of Directors

President: Scott Milburn, scott.milburn@mnnps.org

Vice President: Shirley Mah Kooyman, shirley.mah.kooyman@mnnps.org

Secretary, program coordinator**: Andrés Morantes,** andres.morantes@mnnps.org

Treasurers, membership data base**: Ron and Cathy Huber,** ron.huber@mnnps.org

Ken Arndt, board member, field trip chair, ken.arndt@mnnps.org

Michael Bourdaghs, board member, michael.bourdaghs@mnnps.org

Elizabeth Heck, board member, webmaster, elizabeth.heck@mnnps.org

Daniel Jones, board member, daniel.jones@mnnps.org

Dylan Lueth, board member, dylan.lueth@mnnps.org

Elizabeth Nixon, board member, conservation committee chair, beth.nixon@mnnps.org

Erika Rowe, board member, erika.rowe@mnnps.org

Field Trips: fieldtrips.mnnps@mnnps.org

Memberships: memberships.mnnps@mnnps.org

Historian-Archives: Roy Robison, historian-archives.mnnps@mnnps.org

Technical or membership inquiries: contact.mnnps@mnnps.org

***Minnesota Plant Press* Editor: Gerry Drewry,** 651-463-8006; plantpress.mnnps@mnnps.org

MNNPS questions?

Go to www.mnnps.org for answers. The Society blog is there, news about field trips, meetings, and committees, and all issues of this newsletter since 1982.

Book review

Wetland Plants of Minnesota: a Complete Guide to the Aquatic and Wetland Plants of the North Star State, by Steve W. Chadde, published by CreateSpace, 2011, paperback, 614 pages, $39. May be downloaded at www.amazon.com

Review by Michael Bourdaghs

In 1998, Steve Chadde authored *A Great Lakes Wetland Flora*, which quickly became indispensible for wetland botanists working in the Upper Midwest. It provided nearly comprehensive coverage of the wetland and aquatic species in a single compact volume. That was an improvement over both simpler guides that tend to lack coverage as well as full blown taxonomic treatments that are often cumbersome in the field.

Updates and improvements have been made in subsequent editions, with the second in 2002 and the third released in February 2011. It is from this newest edition that Steve Chadde has compiled *Wetland Plants Of Minnesota.*

As with the previous guides, *Wetland Plants of Minnesota* includes the approximately 900 species that commonly occur in wetland and aquatic habitats in the state, but it is more specifically geared to Minnesota.

Following introductory materials, the book is organized by major taxonomic groups: Ferns and Fern Allies, Gymnosperms, and two Angiosperm (Dicots and Monocots) sections. The keys are technical and dichotomous, where the observer must rely on knowledge of taxonomic terminology and close observation.

The great advantage of the guide is that the keys are limited to the Minnesota wetland species and are thereby simplified. Each species has a complete description that includes physical characteristics, a county range map, habitat information, line drawings, and in some cases black-and-white photography. Many improvements have been made in the species descriptions, compared with previous editions. The addition of the photography also aids identification.

Species distribution maps have previously been available only from sources separate from taxonomic treatments. Having the physical characteristics, map, line drawings and photos for a species all in one place is a great convenience. In some cases, Minnesota specific habitat information has been provided. Brief explanations of many of the genus names have been provided. The white water lily genus – *Nymphaea:* "Water goddess in Greek mythology" is a good example.

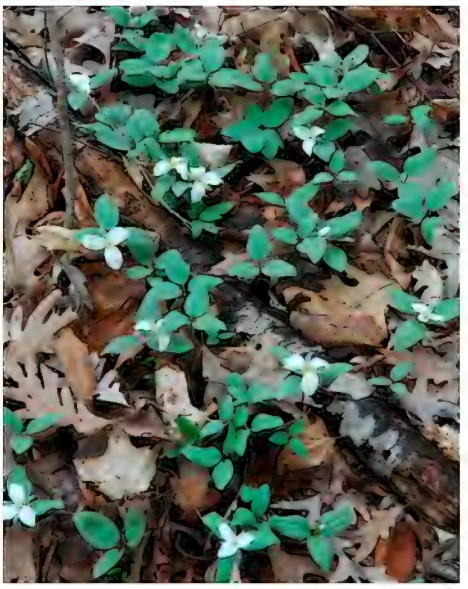
Wetland Plants of Minnesota is an outstanding botanical resource. Its comprehensive coverage, keys, and detailed species information make it a must have for the wetland professional and a great guide for the botanical enthusiast.

Snow trillium is highlight of field trip to Hastings SNA

Twenty Society members spent the afternoon of April 23 hiking and studying early spring wildflowers during a field trip to the Hastings Scientific and Natural Area.

Seeing the rare snow trillium (*Trillium nivale*) in bloom (photo at right) was the highlight of the afternoon. The trip was led by Scott Milburn, MNNPS president, and Ken Arndt, board member.

Future field trips are being planned. Watch the website (www.mnnps.org) for details. These photos are by Ken Arndt.



Minnesota mushrooms: then and now

by David J. McLaughlin, Department of Plant Biology, and Bell Museum of Natural History, University of Minnesota, St. Paul

With the support of the Minnesota DNR, some students, a volunteer and I carried out a survey of mushrooms in western Minnesota between May and October 2007. The survey was motivated by the limited documentation for larger fungi in the western part of the state. This is a progress report on that survey.

But first we will consider how recent advances in classification of fungi, an outcome of a national research program on the Tree of Life and related projects, are changing our view of how different mushroom forms are related and how these changes affect scientific names. Then we will review the survey results. The "Then" in the title refers to the old classification for mushrooms, the "Now" to the new classification. The "Then" also refers to our knowledge of mushroom distribution before the survey; the "Now" refers to the hundreds of new county records and some new state records.

Mushroom classification

The Fungal Tree of Life project was designed to develop a comprehensive phylogenetic tree for fungi, using molecular and structural characters. A phylogenetic tree reveals relationships among species, just as a genealogical tree reveals the relationships between members of our family and connections to other people's families. A phylogenetic tree has predictive value, helping to explain changes among species in their form, internal structure and ecological relationships, just as a genealogical tree explains facial and other physical similarities, as well as our susceptibility to some ailments. The goal of the Tree of Life projects is to provide a classification that reflects the actual relationships among species.

Mushrooms are produced by two great groups (phyla) of fungi, the *Ascomycota* or sac fungi and the *Basidiomycota* or club fungi. The common names for these groups refer to the structures on which their sexual spores are formed. We will focus here on the club fungi, specifically the gilled (agarics), non-gilled (boletes, polypores, coral fungi, teeth fungi, and chanterelles) and the gasteroid (puffballs, earthstars, bird's nest fungi, stinkhorns and false truffles) mushrooms. They were classified in the 19th century in three large groups (orders or class): the Aphyllophorales for non-gilled mushrooms, the Agaricales for gilled mushrooms and the Gasteromycetes for gasteroid forms, whose fruiting bodies remained closed until maturity. This was a convenient classification system for mushrooms because it required only the external form of the mushroom to classify them. But, it also disguised who was related to whom.

The Fungal Tree of Life project has upended the earlier classification with mushrooms now spread across 14 orders and with many different mushroom forms in each order. Naturally, this has an impact on the scientific names of mushrooms. A good example is the inky caps. Formerly all inky caps were classified in a single genus, *Coprinus*, which was distinguished by its black spores and self-digesting gills that produce the "ink." *Coprinus* was placed in the family *Coprinaceae* with some other black-spored mushrooms, such as *Psathyrella*, which lacks the inky gills. The Fungal Tree of Life studies revealed that *Coprinus* was actually four groups (genera) of mushrooms that had independently developed the ability to form inky caps. Three were related to each other and to *Psathyrella*, but the fourth was related to the button mushroom *Agaricus*, including the type of *Coprinus*, i.e., the species to which the genus name is attached. *Coprinus* was then transferred to the *Agaricaceae*. Thus, we ended up with the family *Coprinaceae* without *Coprinus*, and a new family name was chosen — *Psathyrellaceae* for the remaining three groups of inky caps, each with a new genus name, and *Psathyrella* as the type of the new family. These name changes are disconcerting for the scientist and non-scientist alike, but they lead to greater stability in names in the long run and a better understanding of the organisms.

Mushroom survey

Documentation for Minnesota mushrooms has accumulated erratically. From 1885 to 1910, mushrooms were studied as part of the Natural History Survey of Minnesota. Between 1910 and 1960, major fungal studies were concerned with plant diseases. In the 1960s, a renewed interest in the study of mushrooms began, but the documentation for mushrooms within the state is far from complete. Computerization of the fungal collections within the Bell Museum began in the 1990s and now makes it

possible to determine the records by county or management area, such as a state park or forest. These records can be accessed at http://ssrs.cfans.umn.edu:8080/FungiWebSearch/ A check of mushroom records by county in western Minnesota showed that almost all counties were unsurveyed except for those in the vicinity of Itasca State Park, where the University of Minnesota Biological Station is located.

Eight trips to Western Minnesota were made to survey mushroom diversity between May and October 2007. We chose sites with a variety of habitats, including some that would remain moist in dry weather so that mushrooms might be found during drier periods. Two graduate students, Bryn Dentinger and Maj Padamsee, a post-baccalaureate student, Tom Jenkinson, and a volunteer, Esther McLaughlin, assisted with the survey. Four sites became the primary focus of the survey: Kilen Woods State Park, Jackson Co.; Camden State Park, Lyon Co.; Smoky Hills State Forest, Becker Co. (MCBS site E4); Paul Bunyon State Forest, Hubbard Co. (MCBS site T6).

Approximately 300 collections were obtained. Collecting was limited until heavy rains in August. Fifty-five percent of the collections were obtained in late August to early Oct. Most are documented with photographs, and many include descriptions and spore prints. Collections are being processed for inclusion in the Fungal Collection, University Herbarium, Bell Museum. Specimens are essential if we are to successfully document the fungi of Minnesota, a goal needed to establish baseline information on these species that interact in many ways with plants, especially the mycorrhizal species that grow with tree roots and aid the plant in mineral uptake and defense.

Genetic sequences have been obtained for some of the collections as part of the BOLD: Barcode of Life Database project www.boldsystems.org. The ITS, or internal transcribed spacer region of nuclear ribosomal DNA, is being proposed as the first fungal barcode, i.e., a piece of DNA that can be used to identify a species. The ITS sequences have aided in some of the recent identifications. It should be noted that keys to many mushroom genera are inadequate, and primary literature must be used. This is especially true for *Cortinarius, Entoloma*, *Pluteus*, *Russula*, and *Tricholoma*. A monograph for North American species of *Psathyrella* by Smith, 1972, is comprehensive but difficult to use. Maj Padamsee, who recently completed a Ph.D. project on the genus, is responsible for these identifications.

All collections are new county records based on the data in the University Herbarium. The following appear to be new state records: *Conocybe* cf. *siennophylla, Coprinellus tigrinellus, Coprinopsis coniophora, Cortinarius* cf. *alnetorum, Cortinarius gutatus, Galerina decipiens, Laccaria trichodermophila, Lactarius nancyae, Psathyrella lepidotoides, Psathyrella obtusata, Ramaria myceliosa*, and *Russula fontqueri.* Some of these collections will need further study to confirm the identification. The number of new state records makes it clear that the state is very poorly known mycologically, especially considering that collection identification is continuing. The following collections are mentioned in publications but are undocumented in the University Herbarium: *Neolecta irregularis* and *Psathyrella typhae*. *Neolecta irregularis* is an especially interesting find, as it fruits late in the fall and produces brilliant yellow, club-shaped fruiting bodies. It was collected near Itasca State Park, one of the better surveyed areas in the state. Thus, it is surprising that there are no recent reports on its presence in Minnesota.

Another benefit of the survey is that we are beginning to understand the distribution of some of the species and how they relate to the four biomes that make plant distributions in the state of special interest, but also make it vulnerable to rapid climate warming. For example, we now have a second state record for *Russula pulverulenta*. It is now known from Rice and Lyons counties, a southern distribution in the state that suggests it may be restricted to the deciduous forest biome and river valley forests in the grassland biome. The bolete *Paragyrodon sphaerosporus* is a very distinctive species with a heavy rubbery veil which protects the spore-forming layer. It is a mid-continental endemic. In Minnesota it is well known from the deciduous forest biome and is recorded for the first time from the grassland biome, again in river valley forests. At Kilen Woods State Park it seems well adapted to the wood edge adjacent to the upland prairies.

Both saprotrophic and mycorrhizal species were well represented at Kilen Woods and Camden State Parks, with the latter mainly appearing in late August through October. Some species fruited abundantly in both state parks. In Smoky Hills State Forest MCBS site E4 is especially rich in saprotrophic species and seems well adapted to their fruiting, as new species were found regularly throughout the survey. Mycorrhizal species were never common, despite the presence of a diversity of appropriate host tree species.

Paul Bunyon State Forest MCBS site T6 is very sandy and dominated by red and jack pines. It produced few mushrooms until late in the season, when a considerable diversity of mycorrhizal species were present. These included five

Continued on page 6

Mushrooms

Continued from page 5

of *Cortinarius* and the very striking striking *Gomphus floccosus* and *Neolecta irregularis*, but boletes, which would be expected with pines, were scarce.

This report should not be viewed as a complete account of the mushroom species present at these sites. Our focus was on fleshy and readily decayed species, not the better known bracket and shelf fungi. When collecting was good, small species or single specimens had to be ignored, as the documentation required for a collection exceeded our capacity to handle them. Some specimens had deteriorated between visits, which were approximately monthly to each site until the end of August, when more frequent trips were made. Some *Lepiota* species were in good condition for only a day or so after rains. Also, different species are known to appear in successive years at a site, so a complete survey requires several years.

Nevertheless, this report provides a first approximation of mushroom diversity at these sites and a considerable increase in our knowledge of Minnesota mushroom diversity.

Free Landscape Tour

The Ramsey-Washington Metro Watershed District will conduct a free tour of four landscapes from 5 to 9 p.m. Wednesday, Aug. 3. Each area was designed to protect and improve water quality and natural resources and has received an ecology award. The tour begins at the watershed district's office, 2665 Noel Drive, Little Canada. Participants will then board a bus to visit three other sites. To register, contact Shelly Meiser at shelly@rwnwd.org or call 651-792-7965.

Introducing three new board members

Dr. Peter Jordan

To be honest, I must admit my greatest attachment to the land and oceans and their biota lies in California, with Isle Royale the next closest one. After that, Minnesota certainly holds the greatest interest for me.

I grew up in central, coastal California, and from an early age was fascinated with the flora of the Santa Cruz mountains and the birds of San Francisco Bay. My high-school summers were spent working for the concessionaire in Yosemite Valley, from which I began exploring the surrounding wilderness, and eventually became a devout admirer of John Muir.

I was drafted in the Army in the early 1950s and ended my tour with a year at Ft. Lewis Washington – within sight of Mt Rainier. It was my great fortune to have a colleague who was an experienced climber, leading to many weekends on the rocks and glaciers. That experience in turn shifted my professional goals towards natural-resource science and management.

I returned to college and pursued a degree in wildlife conservation at the University of California Berkeley. My academic advisor was Starker Leopold, oldest son of Aldo – whom up to that point, I'd never heard of. Also, without appreciating its academic/scientific significance, I had ended up studying among the top researchers on vertebrate animals within the western U.S. Even before graduating, I had a job with a research group working on range improvement for deer.

This soon led me into graduate work, which eventually led to a Ph.D on ecology and management of migratory deer in the Sierra Nevada. A significant portion of my efforts was on the plant species being eaten by deer over their wide elevational range.

After my prolonged Ph.D, I moved east to join studies of wolves and moose at Isle Royale National Park, as part of a team from Purdue University. After three years of wolf studies in winter and the browsing patterns of moose year round, I took a faculty position at Yale, while still continuing studies at Isle Royale.

Our team there pioneered research on the physiology and ecology of sodium in moose, having discovered that the level of this essential mineral in all the terrestrial plants they eat was well below their minimum requirements. We found that moose compensate by consuming submerged aquatic plants in shallow warm waters during summer. These plants, such as species of *Potamogeton*, concentrate sodium from waters containing extremely low levels of this mineral.

In 1974 I joined the wildlife faculty at the University of Minnesota and have continued here, even after retiring in 2003, with my studies of moose impact on forest vegetation at Isle Royale. Additional work with students in Minnesota has included the effects of intense forest management on forage for moose, deer, and hares in the Superior National Forest, and the effects of deer on herbaceous plants in southeastern Minnesota, the latter being done jointly with Lee Frelich. Also over the years, I've been fortunate to work abroad on wildlife with students in India, Nepal, Israel, Costa Rica, and Quebec plus my own minor studies in Sweden and Alaska, and recently, even some follow-up work on my Sierra

Nevada study area. Besides research in Minnesota, I was involved with an unsuccessful attempt to re-establish woodland caribou to the far-northeastern corner of our state. I am also working with students to restore more native vegetation to a patch of natural habitat, the Sarita Wetland, on the University's St. Paul campus, and I'm currently on the DNR Commissioner's advisory committee on scientific and natural areas.

I must admit, however, that despite my many years in Minnesota, my knowledge of our native flora remains quite limited. I try, however, to compensate by maintaining ties with young botanical experts such as Andrés Morantes and Otto Gockman.

Otto Gockman

I have been a member of the Minnesota Native Plant Society on and off since high school. I live in St. Paul and currently work as a botanist at Midwest Natural Resources, an environmental consulting company based out of St. Paul. I have been interested in native plants, conservation, lichens, etc. for as long as I can remember. I believe that my work as well as my personal experiences with our native ecosystems will contribute greatly towards the goals of MNNPS.

Mike Lynch

I am a graduate of the University of Minnesota (2010) in Applied Plant Science. I became interested in native plants after helping my in-laws begin to restore their degraded oak savanna. I made it my mission to learn the scientific names of all species native to this area. I have recently spent free time volunteering for Great River Greening and exploring the various parks and natural areas in the Twin Cities. One of my favorite things to do is to introduce the public to the beauty of the natural landscape. My favorite plant is Anise-scented hyssop (*Agastache foeniculum*).

Photos of Goldthread* (Coptis trifolia) *are by Peter Dziuk.

DNR wants photos of Itasca State Park

Volunteers are invited to take high quality digital pictures of Itasca State Park, including its flora, fauna and scenic outlooks. Specific photos of people interacting within the park are also needed. Volunteers will work with little direction and must have experience with digital photography and appropriate digital camera equipment. They will name and catalogue all of the digital photos they take. The time commitment is variable throughout the summer and fall. For more information, contact Connie Cox at 218-699-7259 or e-mail constance.cox@state.mn.us

Plant Lore

by Thor Kommedahl

What is goldthread?

Goldthread, also called canker root, is *Coptis trifolia* and a member of the buttercup family.

How did it get its names?

Goldthread describes the golden-yellow, threadlike rhizomes. *Coptis* comes from a Greek word kopto, meaning "to cut" – referring to the dissected leaves. *Trifolia* refers to the three-parted leaves. Rhizomes were chewed to relieve canker sores, hence the name canker root.

What does it look like?

Goldthread is a mat-forming perennial with bright yellow, threadlike rhizomes and three-lobed, shiny, evergreen leaves resembling strawberry leaves. Five white "petals" (really sepals) appear from May through July. Petals are club-like and not conspicuous. It appears to have no stem.

Where does it grow?

It is native to northeastern Minnesota in coniferous forests, swamps, bogs, and road banks – in thickets, mossy places, cedar swamps, and in damp woods. It forms endomycorrhizal associations.

Is it edible, poisonous or medicinal?

It is neither edible nor poisonous. The rhizome is highly astringent and contains berberine, noted for its anti-inflammatory and antibacterial properties. Thus it was widely used in 19th century America for mouth sores. For a while it was listed in the *U.S. Pharmacopaeia.*

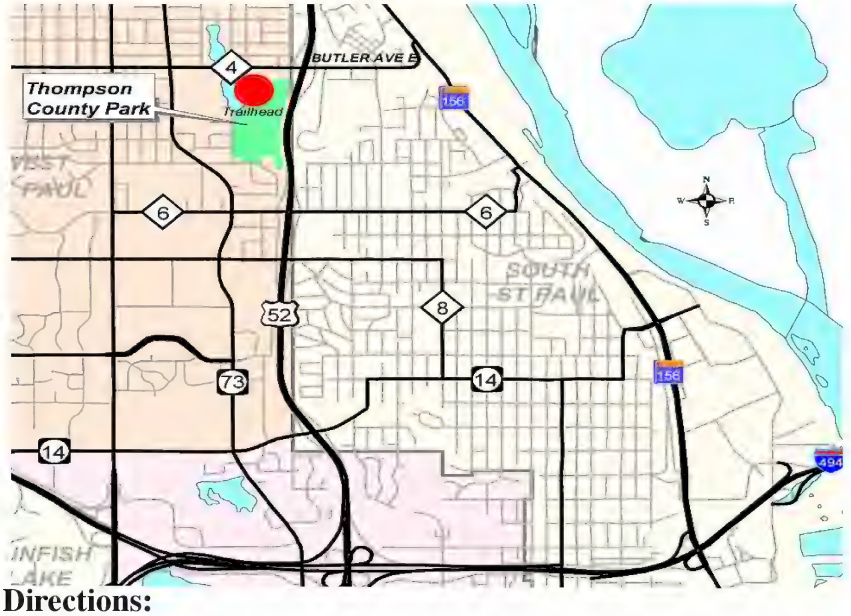
Are there other uses?

Peter Kalm in 1749 reported that leaves and stalks were used by Indians to give a fine yellow color to animal skins, and the French learned this from them to dye wool and other materials. It is considered indicative of minerotrophic water (water that carries mineral nutrients into the peat) in peatlands. Ruffed grouse eat foliage in limited amounts.

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420

Summer 2011

Thompson County Park:
360 Butler Ave East, West St. Paul, MN 55118



Directions:
Take MN Hwy. 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 mile to Stassen Lane.
Go south on Stassen Lane to Thompson County Park.

Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

www.mnnps.org

Volume 30 Number 4 **Fall 2011**

Monthly meetings

Thompson Park Center/Dakota Lodge
Thompson County Park
360 Butler Ave. E.,
West St. Paul, MN 55118

Programs

The Minnesota Native Plant Society meets the first Thursday in October, November, December, February, March, April, May, and June. Check at www.mnnps.org for more program information.

6 p.m. — Social period

7 – 9 p.m. — Program, Society business

Nov. 3: "For Love of Lakes," by Darby Nelson, Ph.D. **Plant-of-the-Month:** Watershield (*Brasenia schreberi*), also by Dr. Nelson. **Fall seed exchange:** After the meeting; see details below.

Dec. 1: To be announced.

Feb. 2: To be announced.

Seed exchange Nov. 4

Members are encouraged to collect seeds from native plants on their own property and bring them to the tables just inside the lodge before the meeting.

Seeds must be packaged in envelopes or small containers and labeled with the plant's name, scientific name (if known), habitat type, location of source, and name of donor.

Ken Arndt is in charge of the exchange. He needs volunteers to receive the seeds, help arrange them, answer questions, and take down the tables.

Fires play critical role in ecosystem of BWCA

by Scott Milburn

It has been very interesting following the events and discussion regarding the Pagami Creek Fire in the Boundary Waters Canoe Area. There is obviously concern for the well-being of those directly affected. Yet, we need to examine the situation for what it is.

The majority of the fire, which impacted more than 92,000 acres, was contained at the time of writing this piece. It has been my impression, based on quotes and commentary in the print media, that some members of the public believe fire suppression should be reconsidered as a management tool, and there is a great deal of outrage towards the Forest Service for allowing this fire to evolve. What appears lost is an understanding of the role and importance of fire on the landscape, particularly in the BWCA.

I find the political theatre by members of the legislature suggesting that the Minnesota attorney general and the DNR sue the Forest Service as sad. Their point is that this fire is responsible for damages to state forest lands and lost revenue. The timber itself is an agricultural commodity and should be thought of in terms of crop success and failure. Farming is by no means a safe financial bet, with good years followed by bad years. It is also disappointing that these legislators do not appear to demonstrate an understanding of ecology, particularly in the districts they represent.

Fortunately a great deal of research has been ongoing in the BWCA, much in part due to the past work of Bud Heinselman. Bud stressed the importance of fire on this landscape. The general concept is easy to understand – it is a nutrient-poor system that relies on fire to release nutrients. His work is a must read. Despite the significant landscape change we are now seeing, this system is a resilient one and one to truly appreciate.

Miron (Bud) Heinselman

Bud, a former forest ecologist with the U.S. Forest Service, advocated for the preservation of Minnesota's Boundary Waters Canoe Area as wilderness.

Continued on page 7

In this issue

Conservation Corner.....2
30K celebration 3
Arden Aanestad 3
New members 3
State wetland survey 4
Peatlands studied.....5
New state record plant 5
Lake Vermilion Park plants ...6
Plant Lore: *Diervilla lonicera* ..7

Conservation Corner

by Beth Nixon

Autumn is a time to drum up ideas with your friends and fellow MNNPS members to advance habitat and native plant conservation measures in legislative proposals for the next session.

Some of our best conservation is occurring from the ongoing slowdown in land conversion to suburbia. However, might there be other strategic approaches to this conservation by default? We have financially incentivized private lands stewardship, but how about smart community planning that reverses the decades-old suburbanization of every little town across the state?

I've been following strongtowns.org this year and their wise and rational arguments for long-term fiscal sustainability of local government. This also turns out, in my view, to be a perfect vehicle for advancing a conservation agenda.

What land conservationist hasn't railed against the demise of a local woods or other undeveloped remnant by foolishly conceived local planning? The economic squeeze is not an evil — it is forcing change from local governments' revolving door with local officials and local landowners who work together to concoct quick bucks from land development plans.

The economic squeeze will hopefully continue to force out land-wasting, poorly planned, sprawling towns. But those who stand to lose usually can't be expected to go quietly. Take some time this fall to read up on the progressive ideas at strongtowns.org and consider how you can get your elected officials to embrace change, and, by default, adopt land-planning practices that conserve open areas.

Black walnuts aplenty

Naturalists in southeasterm Minnesota are reporting a bumper harvest of black walnuts. Dave Palmquist, naturalist at Whitewater State Park, said it's the best crop he's seen in 38 years at the park.

Minnesota Native Plant Society's purpose

(Abbreviated from the bylaws)

This organization is exclusively organized and operated for educational and scientific purposes, including the following.

1. Conservation of all native plants.
2. Continuing education of all members in the plant sciences.
3. Education of the public regarding environmental protection of plant life.
4. Encouragement of research and publications on plants native to Minnesota.
5. Study of legislation on Minnesota flora, vegetation, ecosytems.
6. Preservation of native plants, plant communities, and scientific and natural areas.
7. Cooperation in programs concerned with the ecology of natural resources and scenic features.
8. Fellowship with all persons interested in native plants through meetings, lectures, workshops, and field trips.

MNNPS Board of Directors

President: Scott Milburn, scott.milburn@mnnps.org

Vice President: Shirley Mah Kooyman, shirley.mah.kooyman@mnnps.org

Secretary, program coordinator**: Andrés Morantes,** andres.morantes@mnnps.org

Treasurers, membership data base**: Ron and Cathy Huber,** ron.huber@mnnps.org

Ken Arndt, board member, field trip chair, ken.arndt@mnnps.org

Michael Bourdaghs, boardmember, michael.bourdaghs@mnnps.org

Otto Gockman, board member, otto.gockman@mnnps.org

Elizabeth Heck, board member, webmaster, elizabeth.heck@mnnps.org

Daniel Jones, board member, daniel.jones@mnnps.org

Mike Lynch, board member, mike.lynch@mnnps.org

Elizabeth Nixon, board member, conservation committee chair, beth.nixon@mnnps.org

Erika Rowe, board member, erika.rowe@mnnps.org

Field Trips: fieldtrips.mnnps@mnnps.org

Memberships: memberships.mnnps@mnnps.org

Historian-Archives: Roy Robison, historian-archives.mnnps@mnnps.org

Technical or membership inquiries: contact.mnnps@mnnps.org

***Minnesota Plant Press* Editor: Gerry Drewry,** 651-463-8006; plantpress.mnnps@mnnps.org

Questions? Go to our website: www.mnnps.org

30K celebration at Bailey Herbarium is Nov. 15 at St. John's University

The Colleges of St. Benedict/St. John's University Bailey Herbarium will celebrate its 30,000th specimen with a program and tours at 6:30 p.m. Tuesday, Nov. 15.

"A herbarium is a collection of pressed, dried, labeled and identified plants; in essence, a reference library of plants," said Stephen G. Saupe, CSB/SJU Biology Department professor and herbarium curator.

The 30K Day festivities will be held in Peter Engel Science Center, Room 373, on the campus of Saint John's University, Collegeville, Minn. The program will begin with a brief welcome at 6:30 p.m, followed by a presentation entitled "What is the Bailey Herbarium and Why Celebrate?" by Dr. Saupe.

This will be followed by a presentation entitled "A Botanist Loose in the Herbarium" by Michael Lee, a Minnesota DNR botanist who has worked extensively in the herbarium.

His presentation will be followed by a ceremonial stamping of the 30,000th specimen, which is a moccasin-flower orchid (*Cypripedium acaule*) collected by Michael Lee. Welby Smith, botanist with the Minnesota DNR and the author of *Orchids of Minnesota*, will be the keynote speaker and will discuss Minnesota orchids.

Tours of the herbarium will follow the presentations, and visitors will have the opportunity to make souvenir herbarium magnets.

This program is free and open to the public. For more information, contact Dr. Stephen Saupe, CSB/SJU Biology Department, Collegeville, MN 56321, or 320-363-2782, or send an e-mail to ssaupe@csbsju.edu.

This program is jointly sponsored by the Saint John's Arboretum and CSB/SJU Bailey Herbarium.

Remembering Arden Aanestad

Arden Aanestad of Edina, a long-time member of the Minnesota Native Plant Society, died Aug. 27 at age 86. He received a bachelor of science degree from North Dakota State University, and a master's degree in entomology from Washington State University. His career centered on agricultural chemicals; he co-founded the successful Castle Chemical Co., which he later sold.

An early retirement enabled Arden to dedicate his time to his love of nature. He was a park naturalist at Richardson Nature Center in Bloomington for nearly 30 years and was named Minnesota Tree Farmer of the Year in 2009.

He was active in many nature organizations and especially loved birds. He was a past president of Izaak Walton League, Ruffed Grouse Society, and the Lake Washburn Association, and for 25 years contributed to Cornell University's Project Feeder Watch. Arden was a master bird bander, mentored bird banders, taught bird-watching, and led many bird-watching trips. He did most of his bird banding in northern Minnesota, on his tree farm.

Arden belonged to many nature organizations, including the Nature Conservancy, the Minnesota Mycological Society, and the Minnesota Arboretum. He liked to hunt and fish, and traveled to many countries in the world.

Reminder: *It's time to pay your dues*

The MNNPS operates on a calendar-year basis, so dues are payable in January. Members may pay at the November or December meeting, if they wish. (We do not meet in January.)

We do not send out dues notices, so this reminder will be the only one that you receive.

Download the membership form from our website (www.mnnps.org) or fill in one at a meeting. Mail the form or just send the information and your check to:

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420.

Membership categories

- $15 - Individual
- $15 - Family (Two or more individuals at the same address)
- $8 - Student (Full time)
- $8 - Senior (Over 62 or retired)
- $20 - Institution
- $25 - Donor
- $300 - Lifetime member

Include your name, full address, telephone number (work and/or home) and e-mail address.

MNNPS welcomes new members

The Society gives a warm welcome to eight new members who joined during the third quarter of 2011. Listed alphabetically, they are:
Gary A. Carson, Brainerd;
Paul Dubuque, Duluth;
CarolAnn Hook, Burnsville;
Thomas Huette, Cass Lake;
Kathleen Jones, Wayzata;
Sheila Marfell, Oakdale;
Kathryn Resner;
Ed Wehling, Coon Rapids.

MPCA Begins Statewide Wetland Quality Survey

by Michael Bourdaghs

This summer, staff members from the Minnesota Pollution Control Agency (MPCA) have been busy sampling vegetation in wetlands across the state. It's part of a statewide wetland condition assessment aimed at measuring the overall quality of Minnesota's wetlands.

The survey works much like a political poll, where the opinions of a group can be estimated by randomly surveying a limited number of individuals. First, wetland sites of all types were selected at random throughout the state. Sampling crews then visit the sites and conduct a detailed vegetation survey and, at a subset of sites, collect more detailed data such as soils and water chemistry.

This information will then be used to make an assessment of wetland quality at the site based on previously established metrics and criteria. Because all of the sites are selected at random, the results should reflect the overall quality of Minnesota's 10+ million acres of wetlands.

This work is being done in conjunction with a similar national effort conducted by the U.S. Environmental Protection Agency and will support Minnesota's goal of achieving no net loss in the quantity, quality, and biological diversity of wetlands by providing the first comprehensive statewide estimate of wetland quality. It will also complement an ongoing survey from the Minnesota DNR that tracks the status and trends of wetland quantity in the state.

From June to September, crews traveled to sites from Eagle Mountain in the far northeast to Pipestone County in southwest and many points in between, sampling vegetation in all varieties of swamps, bogs, fresh meadows, and marshes. Many of the state's wetland orchids were observed, and a modest number of listed species records were made.

The highlight of the field season was accessing nine sites in the peatlands of north-central Minnesota via helicopter. The linear-leaved (*Drosera linearis*) and English (*D. anglica*) sundews, which only occur in the patterned fens in the heart of these vast wetland complexes, were both observed at a few of the sites. To date, the MPCA has sampled over 100 of the 150 sites targeted for the survey, with sampling scheduled to be completed in 2012.

Bog at sunrise with Tussock cotton grass (*Eriophorum vaginatum* ssp. *spissum*) and Bog rosemary (*Andromeda polifolia* var. *glaucophylla*) in bloom, Pine County. Photo by Michael Bourdaghs.

Research grants

Prairie Biotic Research is again offering grants of up to $1,000 to individuals for the study of prairies and savannas. This all-volunteer Wisconsin nonprofit was established in 2000 to foster basic biotic research in prairies and savannas.

Many previous grants have supported graduate student research. Proposals must be received by Jan. 5, 2012. For additional information, go to prairiebioticresearch.org

'Barney' traps reveal spread of ash borer

Three-sided purple "Barney" traps are being used to detect the leading edges of the emerald ash borer infestation. The traps, which are named for the cartoon dinosaur of the same color, are baited with a chemical lure and coated with glue. They were developed by the U.S. Forest Service, which distributed 61,500 to state and local conservation groups in all 48 states this year.

Since the beetles were discovered near Detroit in 2002, they have spread to 15 states and Ontario. Foresters no longer consider eradication a possibility; instead, they want to slow the spread to protect as many of the nation's 9.5 billion ash trees as possible. The Barney trap is the strategy's centerpiece. If officials know where the beetles are and where they are going, they have a chance to slow them down.

Each side of the trap is corrugated plastic, 14 inches wide by 24 inches high. They are tinted a deep purple (the color the beetles preferred), folded to form a prism and coated with glue. The chemical lure includes manuka oil from a tree in New Zealand. Each trap costs about $9; the lure packet costs $5.

New York State has spent $1 million this year to survey and slow the spread of the beetles. Campgrounds are among the target areas.

Foresters are using information from 6,560 Barney traps and making "sink trees." They remove a strip of bark about six inches wide all around the trunks of the designated sink trees. Great numbers of the beetles are drawn to these locations instead of spreading throughout a forest. In winter, the sink trees will be cut down, and most of the larvae will die.

Peatlands are focus of county surveys

by Erika Rowe, MCBS plant ecologist

As part of the ongoing statewide survey by the DNR's Minnesota County Biological Survey (MCBS), recent attention has been focused on the patterned peatlands of northwestern Minnesota.

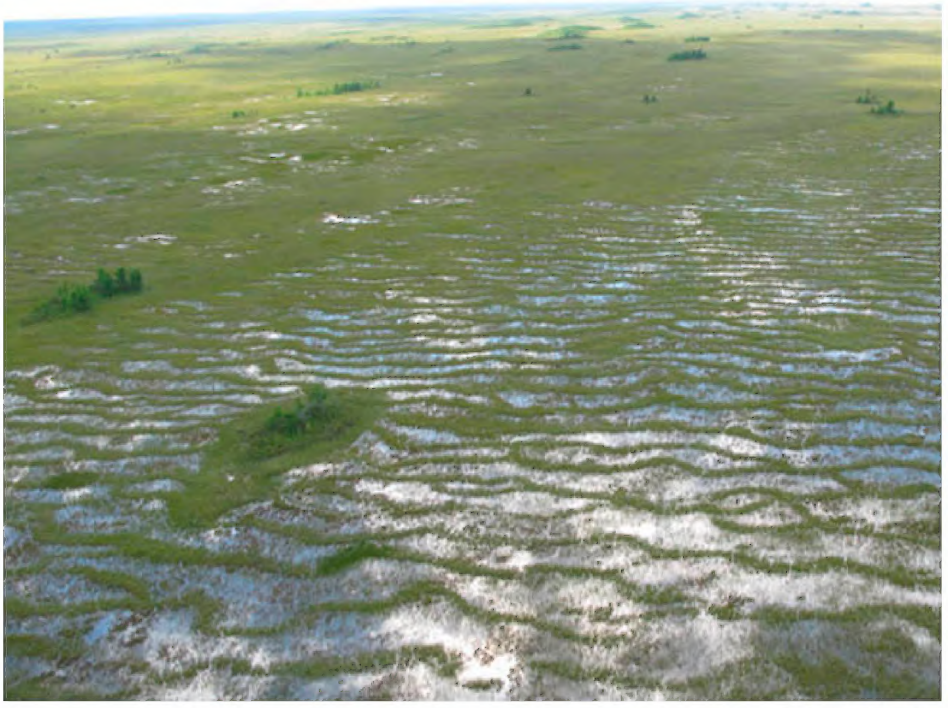
Peatlands cover over six million acres, or more than 10 percent of the state, and are internationally recognized for their ecological significance. In addition to their ecosystem-level importance, Minnesota's peatlands provide habitat for over two dozen rare plant species, including linear-leaved sundew, English sundew, twig-rush, and montane yellow-eyed grass.

MCBS plans surveys in many of the peatland communities throughout northern Minnesota in the coming field seasons, despite many problems with accessing these remote places.

The Red Lake Peatland has been of particular focus for the past two summers because it is the largest and most diversely patterned peatland in the United States. It is also the southernmost of the boreal peatlands in North America. Its southerly position makes it a bellwether for the impacts of climate change on northern peatlands.

One of the most pressing concerns is that climate change will dry peat surfaces, causing rapid decomposition of peat and the release of large quantities of carbon dioxide and methane into the atmosphere.

During the past two summers, MCBS has worked with Dr. Paul Glaser, University of Minnesota, to set up permanent vegetation monitoring plots at a variety of sites within the peatland. Many of these plots represent sites where he and Botanist G. Wheeler collected data in the late 1970s and early 1980s.



Patterned fen, called the western water track, in the Red Lake Peatland stretches for approximately 14 miles and makes up the western-most extent of the peatland. The linear bands are ridges of peat called strings, and the pools of water are called flarks. Photo by Erika Rowe, DNR. For more information, go to http://files.dnr.state.mn.us/eco/mcbs/peatland_poster

This *Botrychium crenulatum* plant was discovered in the Chippewa National forest. Photo by Otto Gockman.

State record plant is first found east of the Rockies

It is always big news when a new state record plant is found. It is especially exciting news if this is the first time the plant has been found east of the Rocky Mountains.

Botrychium crenulatum was a surprising discovery this past June in the Chippewa National Forest.

The species was observed with *Botrychium ascendens*, also marking the first time for that species to be located in a native plant community in Minnesota.

Apart from this being a major range expansion for *B. crenulatum,* it is hoped that this discovery will shed more light on the presence of *B. ascendens*, a species of hybrid origin between *B. crenulatum* and either *B. campestre* or *B. lineare*.

Native plant communities of Lake Vermilion State Park

by Tavis Westbrook, Minnesota DNR resource specialist, Division of Parks and Trails

On June 8, 2010, Lake Vermilion State Park became Minnesota's newest state park. Situated near Soudan, Lake Vermilion State Park is roughly 3,000 acres in size and is directly adjacent to Soudan Underground Mine State Park. Both parks combined boast nearly 10 miles of undeveloped shoreline on the east end of Lake Vermilion and about 4,000 acres of land.

The mapping of the native plant communities of Lake Vermilion State Park began in earnest in early 2010. We knew some of the recent land-use history on the parcel already:

• It had been owned by US Steel since the late 1800s;

• It had been managed for timber continuously through the 20th century; and

• It contained very rugged upland terrain as well as many hundreds of acres of open and wooded wetlands.

We also were able to look at its landscape position and make some assumptions about its physical characteristics using the Ecological Classification System developed by the Minnesota DNR.

That hierarchical system told us that the park was in the Border Lakes Subsection. This subsection consists of "scoured bedrock uplands or shallow soils on bedrock, with large numbers of lakes. Topography is dominantly rolling with irregular slopes and many craggy outcrops of bedrock." Another term commonly used within this subsection and certainly for this park would be "Canadian Shield" topography

If you have visited the Boundary Waters Canoe Area Wilderness (BWCAW) and Quetico Provincial Park to the north and east, you have a pretty good idea of what I am describing.

Next, we used a Geographic Information System to obtain other relevant data that also existed for the parcel: streams, lakes, wetlands, topography, and soils data were particularly helpful. Additionally, color infrared photography was essential when determining land cover types because of the way different plant communities, even tree species, have different photo signatures. After acquiring and analyzing all of the data, it was then up to park resource specialists, with help from the DNR County Biological Survey, to go in the field and verify (or "ground truth") our assumptions that we made from the GIS analysis and supporting data.

'Ground truth' results

We identified 21 different plant community classes in eight different ecological systems in Lake Vermilion State Park.

The vast majority of the uplands were classified as Northern Mesic Mixed Forest (FDn43). The dominant tree species were aspen and birch, with some pockets dominated by young red and jack pine. The stand ages throughout most of the park were young to very young, confirming that most of this land was logged in the late 1970s and early 1980s. This is a fire-dependent plant community, but fire was not at all frequent historically, averaging over 200 years between significant fire events.

One anomaly discovered during our field reconnaissance was the presence of small pockets of Northern Mesic Hardwood Forest (MHn35). This plant community is common statewide but does not appear to be common this far north in the state. More study is needed why this plant community is present in the park.

Not surprisingly, over 50 percent of the park is wetland and peatland. Most of the wetland systems we mapped can either be classified as wet ash forest (WFn64), wet cedar forest (WFn53), or beaver wetland complex. Even in the wetlands there was clear evidence of logging, most likely for cedar and tamarack posts. With that said, many of these wetlands are in good condition, with cedar regenerating quite well in areas not flooded regularly by beaver. Interestingly, there is very little acid peatland in the park. The rugged terrain, small basin size, and beavers all likely contribute to this fact.

Lastly, there are dozens of small to medium rock outcrop and cliff features that give the property variety, relief, scenery, and botanical interest. It is likely that some of these features may harbor less common plant species. Again, more survey work will be needed to confirm this hypothesis.

To conclude, this is just one aspect of the inventory work conducted by the Minnesota DNR at Lake Vermilion State Park. We anticipate many different surveys of the flora and fauna will be conducted as the division develops the park for recreational use. A new state park comes along maybe once in a career, and I have been fortunate to be on the ground helping the division in its initial natural resource inventory efforts.

Treasurers' report

Ron and Cathy Huber report that on Sept. 30, the MNNPS had total assets of $19,763, including $10,769 in the checking account, $8,939 in CDs, and $55 cash. Income for the nine months totaled $11,094. Expenses totaled $8,192. Net income was $2,902.

Plant Lore

by Thor Kommedahl

What is northern bush honeysuckle?

Bush honeysuckle is *Diervilla lonicera* in the honeysuckle family, native to Minnesota.

How did it get its names?

Diervilla was named after a French surgeon, Dr. Diéreville, who visited Canada and brought the plant to the French botanist Tournafort in 1699. *Lonicera* refers to the resemblance of the leaves to honeysuckle (*Lonicera* spp.). *Lonicera* was named after the German botanist Adam Lonitzer.

Where does the plant grow?

Bush honeysuckle grows mainly in wooded areas, often in Jack pine stands, in dry, or rocky, well-drained soil. It is often associated with hazel, dogwood, alder, chokecherry, and blueberry.

What does the plant look like?

It is a low shrub two to four feet tall with slender, ridged twigs and opposite, finely toothed, egg-shaped leaves. It has funnel-shaped, yellow flowers, often reddish in spring. Bumblebees, butterflies, and moths pollinate the flowers. Leaf colors in fall are yellow, orange, and red. Fruits are long-pointed capsules. Plants spread mainly by rhizomes, and plants regenerate rapidly after a fire or after logging, e.g., after paper birch or balsam fir logging near Duluth.

Are they edible, medicinal, or poisonous?

The Potawatomi Indians made tea from rhizomes or leaves for use as a diuretic. They are neither edible nor poisonous, although one report is that leaves contain a narcotic principle that induces nausea.

Is bush honeysuckle useful in other ways?

Deer and moose browse shrubs in winter. They are useful as a tall ground cover and to hold banks from erosion. Plants can be propagated by seed or cuttings. Seed can be stored.

BWCA fires

Continued from page 1

Earlier in his career, he studied the ecology of black spruce and the extensive patterned peatlands of northern Minnesota.

He then turned to the much more complex task of deciphering the ecology of northeastern Minnesota's coniferous forests. The BWCA's vast stands of virgin forest enabled Heinselman to identify and document the forest dynamics – particularly the major role fires have played in determining the structure and composition of the wilderness forest.

Heinselman wrote several books about the Boundary Waters Canoe Area. Limited numbers of *The Boundary Waters Wilderness Ecosystem*, published in 1999, are still available.

Diervilla lonicera

Top left: Closeup of flowers, photo by Shirley Mah Kooyman.

Center left: Blooming branch, photo by Peter Dziuk.

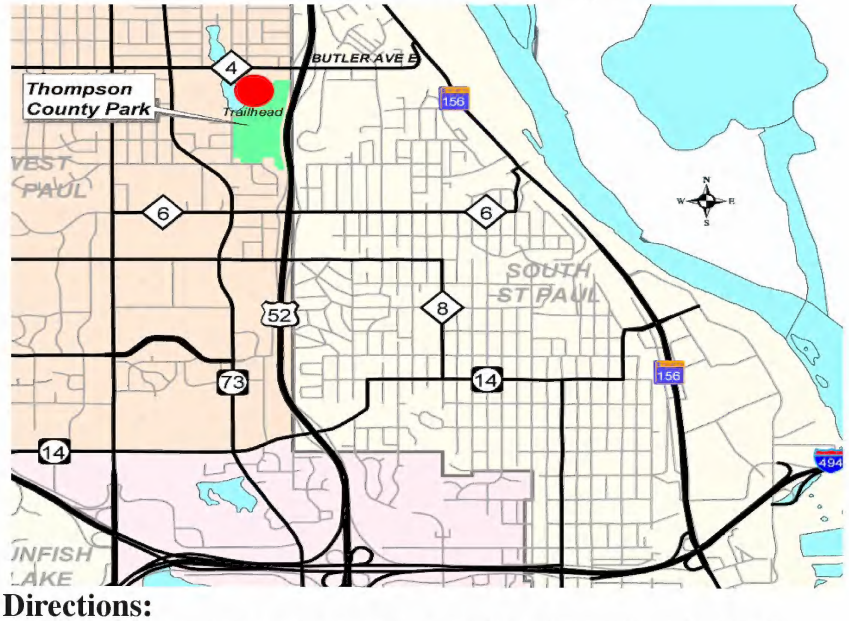
Bottom left: Bush, photo by Shirley Mah Kooyman.

Below: Moose damage on Isle Royale, photo by Peter Jordan.

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420

Fall 2011

Thompson County Park:
360 Butler Ave East, West St. Paul, MN 55118



Directions:
Take MN Hwy. 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 mile to Stassen Lane.
Go south on Stassen Lane to Thompson County Park.